



Planning
Assessment
Commission

Kendall Bay Marina Project

PAC Report

20 April 2011

The Kendall Bay Marina Project PAC Report©
State of New South Wales through the NSW Planning Assessment Commission, 2011.

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EXECUTIVE SUMMARY

The Kendall Bay Marina Project is a major project application for a 172-berth marina and associated infrastructure in Kendall Bay on the Parramatta River. Kendall Bay lies on the southern shore of the River, approximately mid-way between the Ryde and Gladesville Bridges. Part 3A of the *Environmental Planning and Assessment Act 1979* applies to this project.

On 27 September 2010 the former Minister for Planning issued the following directions to the Planning Assessment Commission (PAC):

I, the Minister for Planning:

- 1. Request the Planning Assessment Commission (the Commission) to carry out a review of the Kendall Bay Marina Project and prepare a detailed Environmental Assessment report which advises on:*
 - (a) the suitability and long-term effectiveness of the proposed sediment protection system;*
 - (b) the environmental impacts of the Project, and whether these impacts can be suitably managed or offset to ensure an acceptable level of environmental performance; and*
 - (c) the issues raised in submissions.*
- 2. Direct, that for the purposes of carrying out the review, the Commission appoints Dr Graeme Batley, an independent expert, as a casual member of the Commission.*
- 3. Request the Commission to conduct a public hearing and provide its final report on the matter to the Director-General as soon as practicable after the public exhibition period for the Project closes.*

On 25 November 2010 the Chair of the PAC nominated Dr Neil Shepherd AM to chair the Commission with Mr John Court and Dr Graeme Batley as Commissioners. The Environmental Assessment became available to the Commission in late November 2010 and a draft of the Department of Planning's Issues Paper was received on 4 February 2011. Two days of Public Hearings were held on 23 and 24 February 2011.

Apart from the usual environmental and planning concerns that accompany any commercial marina proposal for Sydney Harbour and its catchment, Kendall Bay has two major constraining features:

- First, the sediments in the Bay are heavily contaminated with a range of contaminants (most associated with the operation of the former Mortlake Gasworks). The sediments are subject to a Remediation Order issued in 2004 by the Environment Protection Authority that prohibits activities that would disturb them. There is currently a proposal to remediate two areas of the Bay that are considered to pose a particular risk to human health; and
- Second, residential development around the foreshore of the Bay means that there is no direct vehicle access to the proposed Marina. The proposed car park is some 230 m by footpath from the Marina entrance and there is no buffer zone (e.g. commercial premises or public space) between the Marina and residences.

To meet the requirement to avoid disturbance of contaminants in the sediments, the Proponent proposed a sediment protection system (SPS) consisting of a geotextile layer

covered with 300 mm of basalt rock. This would be placed over the bottom of the Bay in the area of the Marina footprint and extend a short distance beyond it on all sides.

The Commission considered a vast amount of material concerning the likely effectiveness of the proposed SPS in preventing disturbance and migration of contaminants from the sediments. The Commission concluded, *inter alia*, that:

- The life expectancy of the proposed geotextile barrier is untested but likely to be less than one third of the 100 plus years claimed by the Proponent;
- The physical stability and integrity of the geotextile cover is questionable in the Kendall Bay environment;
- The ability of the proposed SPS to prevent additional disturbance and migration of the contaminants in the bed sediments is highly questionable. On the available evidence a much thicker SPS consisting of geotextile covered by clean sand and gravel with rock armour on top would be necessary. The thickness of the sediment layers required for Kendall Bay is unknown and substantial further study and modelling would need to be undertaken to determine this. Based on the available evidence the SPS may need to be up to 1.5 m thick rather than 0.3 m thick as proposed. An increase of this magnitude would significantly reduce the area available for berthing large vessels.
- Given the current risk assessment and the available remediation technologies, the 'do not disturb' strategy adopted in the Remediation Order is appropriate to manage the Bay sediments other than those in the two specific areas to be remediated.
- Construction and operation of a commercial marina in Kendall Bay is considered incompatible with this 'do not disturb' strategy.

The proposed Marina is water-based and would connect to land via the foreshore walkway at the site of the old Hunters Wharf. The residential precinct known as Hunters Wharf is on the other side of this walkway. The car park for the Marina is located behind the Hunters Wharf residences and is only legally accessible via 230 m of footpaths.

The proximity of the Marina to the residences and the lack of ready access to adequate facilities for service vehicles and parking for Marina users (those accessing boats, public wharf or kiosk) create significant areas of potential conflict between the Marina users, the residents and the general public who currently use the foreshore walkway and parklands. The Commission concludes, *inter alia*, that:

- parking provisions are clearly inadequate in terms of the number of spaces, accessibility of those spaces to all likely users of the Marina facilities, and proximity of the spaces to the Marina. Conflict between the Marina users and the residents is considered inevitable;
- access for essential services to the Marina (supplies, waste removal, boat servicing) is inadequate. Given the site constraints, waste handling appears certain to create major problems;
- adequate access for emergency vehicles is unresolved; and
- residents living in proximity to the Marina and the car park would inevitably be subjected to a range of anti-social behaviours occurring at all hours (including noise, littering and trespass).

Significant environmental issues other than those arising from contaminated sediments and the configuration of the existing and proposed residential development include visual impacts, pollution and waste management.

Potential visual impacts were assessed using standard techniques plus direct observation. The assessment indicated that the proposed Marina would create significant negative impacts over large areas for both the residents and the many existing users of the public walkways and parks. The Commission concluded that the visual impacts would be unacceptable for the vast majority of residents and public facility users.

Apart from pollution by copper in anti-fouling paints used on boat hulls, most of the pollution and waste issues (noise, waste, litter, etc) could be manageable except for the site constraints mentioned above (vehicle access and lack of a buffer zone between residences and the Marina). As it is, these pollution and waste issues would be extremely difficult to manage and would be an ongoing source of conflict.

There were many other issues raised in submissions. Of these the Commission considered that potential impacts on navigation and safety were of major concern. The proposal would create additional congestion in the main river channel, would alienate a large body of 'safe' water currently used by the public and schools for passive recreation and, because ferries would have to deviate from their current approach and departure paths from Cabarita Wharf, would increase ferry travel times sufficient to cause a reduction in services. None of these impacts are considered to be in the public interest.

The Proponent put forward a number of benefits in support of the proposal including demand for a marina west of Sydney Harbour Bridge and the creation of a 24 hour public access wharf that would be available to all vessels including charter vessels.

The Commission's investigation of demand did not support the Proponent's position. The conclusions were that there was no pressing need for such a marina and that there were other proposals on foot that could more than cater for any demand that did exist. The 24 hour public wharf would inevitably add to the potential conflict with residents: there is no marina management proposed to be on site outside business hours and there are inadequate facilities to cater for people who may wish to access the wharf from charter vessels. The Commission's conclusion is that there is no significant public benefit arising from the proposed development.

A substantial level of opposition would be expected to any commercial marina proposal in close proximity to residential development. However, the negative response to this particular project came from a wide cross-section of the community (e.g. Council, Members of Parliament, Residents Associations, Schools, Clubs and individuals), covered the full spectrum of issues, and was generally well-researched and presented. It was clear to the Commission that there is a very strong view that the public interest would not be served by allowing development of a commercial marina in Kendall Bay.

Overall, the Commission considers the impacts of the proposal are unacceptable across a range of important factors. The Commission also considers that the site-specific constraints of contaminated sediments, lack of direct access for vehicles and lack of any buffering for existing and proposed residential development would make Kendall Bay an unsuitable location for any commercial marina. The Commission recommends that the project be refused.

CONTENTS

Executive Summary.....	i
Contents.....	iv
Tables	vi
Glossary.....	vii
1 Introduction and Terms of Reference.....	1
2 Project Description.....	2
2.1 Introduction	2
2.2 Proposed Project.....	3
3 Commission Activities	9
3.1 Public Hearings and Submissions.....	9
3.2 Documents, Meetings and Site Inspections	9
4 Contextual Matters	10
4.1 Strategic Context	10
4.1.1 <i>Background to the Site</i>	10
4.1.2 <i>Project Need</i>	12
4.2 Statutory Context.....	13
4.2.1 <i>Major Project</i>	13
4.2.2 <i>Permissibility</i>	13
4.3 Environmental Planning Instruments.....	15
5 Impacts of the Marina on Management of Contaminants	16
5.1 Contaminant Distribution in the Bay	16
5.2 Proposed Dredging by Jemena	18
5.3 Sediment Contaminant Management Options	18
5.4 Impacts on Sediment Contaminations of the Proposed Marina	19
5.5 Proponent's Proposed Sediment Management Strategy	19
5.6 Impacts During Construction.....	20
5.7 Durability of the Proposed Cap	21
5.8 Impact of the Proposed Cap on Contaminants.....	21
5.9 Design Issues with the Proposed Cap	24
5.10 Marina Access with a Thicker Cap.....	25
5.11 Impact of the Cap on the Benthic Ecosystem	26
5.12 Conclusions	26
6 Access	28
6.1 Community Plan and Legal Access Issues	29
6.2 Parking.....	29
6.2.1 <i>Suitability of the proposed number of parking spaces</i>	29
6.2.2 <i>Access to the Car Park</i>	31
6.2.3 <i>Logistics of Using the Car Park versus Kerbside Spaces or Driveways</i>	31
6.3 Operational Logistics, Goods and Waste.....	32
6.4 Emergency Access and Hazard Management.....	34
6.4.1 <i>Emergency Access for Heavy Vehicles</i>	34
6.4.2 <i>Emergency Access for People Responding to an Incident on the Marina</i>	35
6.5 Public Wharf.....	35
6.6 Conclusions	35
7 Pollution and Waste Associated with the Construction and Operation of the Proposed Marina.....	37
7.1 Water Quality	37
7.2 Noise.....	37
7.3 Air Quality.....	39
7.4 Waste	39
7.5 Conclusions	40

8	Visual Impact	41
8.1	Character of the views to be affected.....	41
8.2	Assessment of Impacts	47
8.2.1	<i>View Analysis Matrix</i>	47
8.2.2	<i>View Sharing Principles</i>	50
8.3	Acceptability of the Visual Impact.....	50
8.3.1	<i>Sydney Harbour REP</i>	51
8.3.2	<i>Sydney Harbour DCP</i>	52
8.4	Conclusions	53
9	Navigation and Safety	54
10	Demand For Marina Berths in Kendall BAy.....	56
10.1	Current Demand	56
10.1.1	<i>Findings of the Proponent’s Marina Berth Demand Assessment</i>	56
10.1.2	<i>Demand Variability around the Harbour</i>	56
10.1.3	<i>Use of Mooring Applications as a Measure of Demand</i>	59
10.1.4	<i>Alternative Supplies Available</i>	60
10.1.5	<i>Ability of the Proposed Marina to Satisfy Demand for Supplies and Servicing</i>	60
10.2	Future Demand	60
10.3	Conclusion.....	61
11	Other Significant Issues raised in submissions	62
11.1	Hazards and Risks	62
11.2	Obstruction of Passive Recreation.....	62
11.3	Impacts and Use of the Kiosk.....	63
11.4	Development Standards and Practices at Breakfast Point	64
11.5	Public Consultation and Information About the Proposal	64
11.6	Other Issues	66
12	Conclusions and Recommendations.....	67
12.1	Site History and Strategic Context	67
12.2	Impacts of a Marina on Management of Sediment Contamination	67
12.3	Access to the Marina	68
12.4	Pollution And Waste Associated With the Construction And Operation of the Proposed Marina....	69
12.5	Visual Impacts of the Marina	69
12.6	Navigation and Safety	69
12.7	Demand for Marina Berths in Kendall Bay	70
12.8	Other Issues	70
12.9	Recommendation.....	70
13	References.....	71
14	List of Appendices	74
	Appendix A	75
	Terms of Reference	75
	Appendix B.....	76
	Summary of Submissions received by the Department of Planning.....	76
	Public Authorities	76
	Residents, Community Groups and Businesses	78
	Appendix C.....	84
	Summary of Submissions received by the Planning Assessment Commission	84
	Appendix D	90
	Public Hearings Schedule.....	90

FIGURES

Figure 2.1 Kendall Bay and surrounds	2
Figure 2.2 Location of proposed Marina in Kendall Bay and Car Park at Breakfast Point, shown in red.....	3
Figure 2.3 Layout of the proposed Marina	5
Figure 2.4 Proposed Kiosk.....	6
Figure 2.5 Proposed Manager's Office	7
Figure 2.6 Proposed Car Park	8
Figure 4.1 Breakfast Point and surrounds, circa 1943	10
Figure 4.2 Jemena's proposed remediation areas in Kendall Bay, shown in orange.....	12
Figure 5.1 Map of Kendall Bay showing Jemena's proposed remediation areas	16
Figure 5.2 Map showing the plans for the Marina and the area of the Bay proposed to be covered by the geotextile blanket	20
Figure 5.3 Current Water Depth at Lowest Astronomical Tide.....	25
Figure 6.1 Access to the proposed Marina shown in green arrows, (illegal, but currently unrestricted access shown in red)	28
Figure 6.2 Closest vehicle access.....	32
Figure 6.3 Alternative vehicle access point	34
Figure 8.1 View from Tennyson Point	42
Figure 8.2 Vantage Points considered around Kendall Bay (shown in yellow)	43
Figure 8.3 Existing view from Vantage Point 1	44
Figure 8.4 Existing view from Vantage Point 2	44
Figure 8.5 Existing view from Vantage Point 3	45
Figure 8.6 Existing view from Vantage Point 4	46
Figure 8.7 Existing view from Vantage Point 5 (sourced from the Proponent's Environmental Assessment)	46
Figure 8.8 Photomontages from the Proponent's Environmental Assessment from view points 1, 3, 4 and 5 (TBL Engineers, 2010, Vol 5).....	49
Figure 8.9 Photomontage (view from Putney towards Cabarita Park) from the Proponent's Environmental Assessment.....	52
Figure 10.1 Extract from NSW Maritime Sydney Region Mooring Areas Map (Area D moorings are shown in yellow and Area F moorings are shown in blue) (NSW Maritime, 2010c).	57
Figure 11.1 Rowers in Kendall Bay (photograph, sourced from the Breakfast Point Resident's Group submission to the Department (Breakfast Point Residents Group, 2010)).....	62
Figure 11.2 Kayaks in Kendall Bay (photograph sourced from the Breakfast Point Resident's Group Submission to the Department (Breakfast Point Residents Group, 2010))	63
Figure 11.3 Extract for the 2002 Master Plan for Breakfast Point, provided in the Proponent's Response to Submissions (Breakfast Point, 2011)	65

TABLES

Table 5.1 Estimates of water depth under the proposed Marina with and without capping ^a ...	25
Table 8.1 Sydney Harbour Foreshore and Waterways Area DCP - View Analysis Matrix (degree of impact – High = 3, Medium = 2, Low = 1)	48
Table 10.1 NSW Maritime Priority Waiting List Sydney Harbour Area F (NSW Maritime (2011)).....	58
Table 10.2 NSW Maritime Priority Waiting List Sydney Harbour Area D (NSW Maritime (2011)).....	59

GLOSSARY

BTEX:	Benzene, toluene, ethylbenzene and xylenes
Commission:	Planning Assessment Commission
DECCW:	Department of Environment, Climate Change & Water, now known as the Office of Environment and Heritage.
DGRs:	Director-General's Requirements (provided by the Director-General of the Department of Planning for an environmental assessment or environmental impact statement).
Department:	Department of Planning, now known as the Department of Planning and Infrastructure.
EA:	Environmental Assessment (referenced as TBL Engineers, 2010).
EP&A Act:	<i>Environmental Planning and Assessment Act 1979.</i>
Jemena:	Jemena Ltd, previously known as Alinta LGA Ltd, or AGL, or the Australian Gas Light Company
LGA:	Local Government Area.
PAC:	Planning Assessment Commission.
PAH:	Polycyclic Aromatic Hydrocarbons
Proponent:	The applicant under Part 3A of the EP&A Act, in this report being Breakfast Point Pty Ltd. 'Proponent' includes the proponent's EA consultants.
Proposal:	The subject of the application under Part 3A of the EP&A Act, in this report being the Kendall Bay Marina Project.
RTA	Roads and Traffic Authority of NSW
SEPP:	State Environmental Planning Policy
Sydney Harbour DCP:	<i>Sydney Harbour Foreshores and Waterways Area Development Control Plan for Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005</i>
Sydney Harbour REP:	<i>Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005</i>
TOR:	Terms of Reference.
TPH:	Total Petroleum Hydrocarbons

1 INTRODUCTION AND TERMS OF REFERENCE

On 27 September 2010, the then Minister for Planning issued the following directions to the Chairman of the Planning Assessment Commission (PAC):

I, the Minister for Planning:

- 1. Request the Planning Assessment Commission (the Commission) to carry out a review of the Kendall Bay Marina Project and prepare a detailed Environmental Assessment report which advises on:*
 - (a) the suitability and long-term effectiveness of the proposed sediment protection system;*
 - (b) the environmental impacts of the Project, and whether these impacts can be suitably managed or offset to ensure an acceptable level of environmental performance; and*
 - (c) the issues raised in submissions.*
- 2. Direct, that for the purposes of carrying out the review, the Commission appoints Dr Graeme Batley, an independent expert, as a casual member of the Commission.*
- 3. Request the Commission to conduct a public hearing and provide its final report on the matter to the Director-General as soon as practicable after the public exhibition period for the Project closes.*

A copy of the Minister's direction to the Panel is provided in Appendix A of this report.

Ms Gabrielle Kibble AO, Chairman of the PAC appointed Dr Neil Shepherd AM, as Chair of the Panel, and also appointed Mr John Court to the Panel; both are current members of the PAC. As required by the Minister's terms of reference, Dr Graeme Batley was also appointed as a casual member of the Commission. Consequently the Panel constituted:

- Dr Neil Shepherd AM, chair;
- Mr John Court; and
- Dr Graeme Batley.

2 PROJECT DESCRIPTION

2.1 INTRODUCTION

The Kendall Bay Marina Project is a major project application for the construction and operation of a 172-berth marina in Kendall Bay (see Figure 2.1 and Figure 2.2), with associated infrastructure on both the land and water.

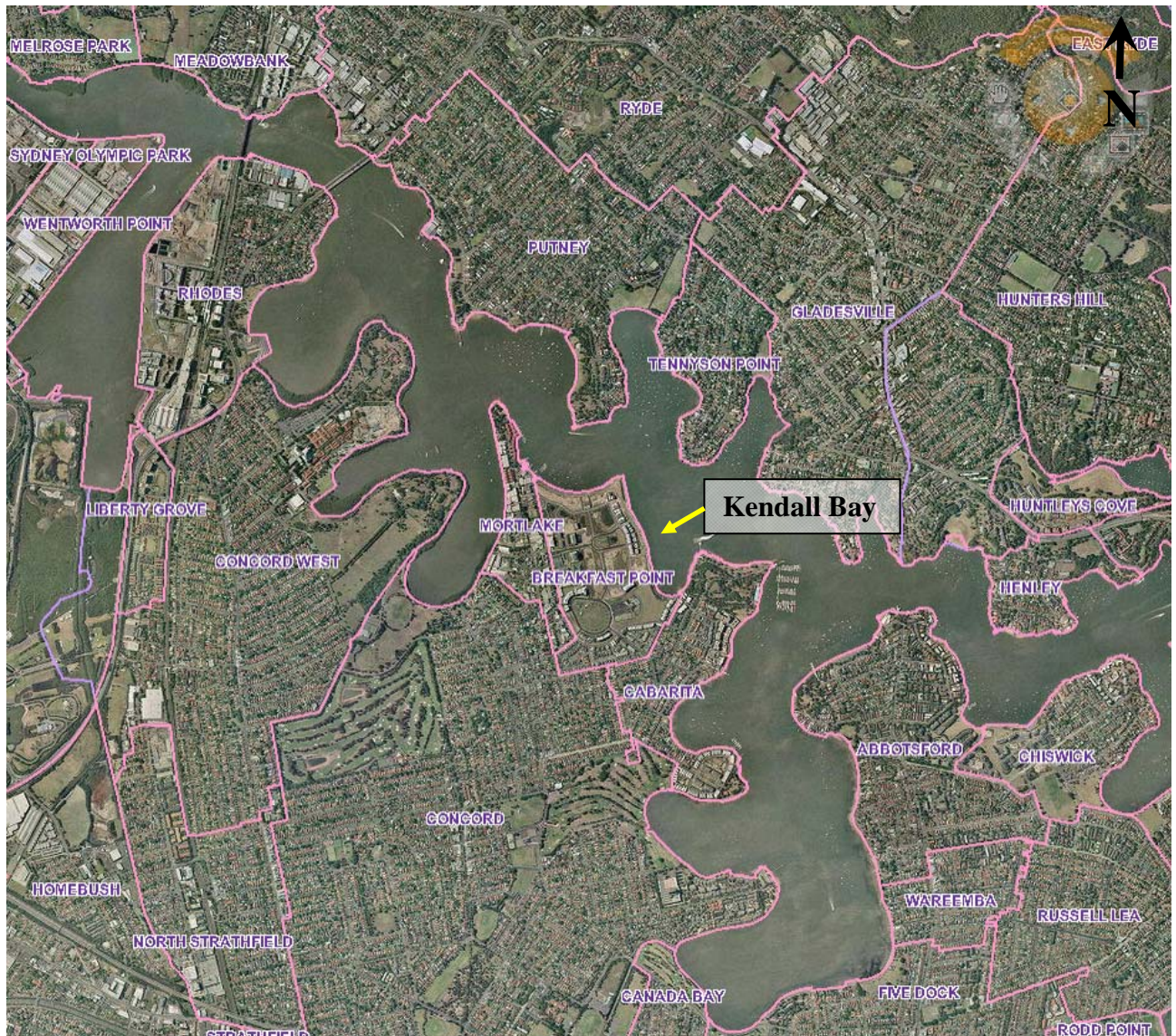


Figure 2.1 Kendall Bay and surrounds



Figure 2.2 Location of proposed Marina in Kendall Bay and Car Park at Breakfast Point, shown in red

Between 1886 and the 1990s the land surrounding Kendall Bay was occupied by the Mortlake Gasworks, which produced town gas from coal and petroleum naphtha. Activities on the site over many years led to contamination of the gasworks site and adjacent riverbed sediments in Kendall Bay and the Parramatta River. The land has now been remediated and substantial residential development has taken place in the Breakfast Point area. However, the sediments in the riverbed and Bay remain contaminated with petroleum hydrocarbons. Further details of the site history can be found in Section 4.1.1 - Background to the Site.

2.2 PROPOSED PROJECT

The Proponent proposes to develop a marina with capacity for 172 vessels. The Project includes 3 components; a land-based component (the car park); a water-based component (the Marina); and a riverbed component (the Sediment Protection System).

The **water-based Marina component** includes:

- 172 vessel berths to accommodate a range of vessels up to 25 m in length;
- A fixed jetty and ferry pontoon, with 24-hour public access and capacity to accommodate a ferry, should a ferry stop be proposed in the future;
- A sewage and bilge water pump out;
- A 50-seat kiosk; and
- A manager's office, amenities and security gate.

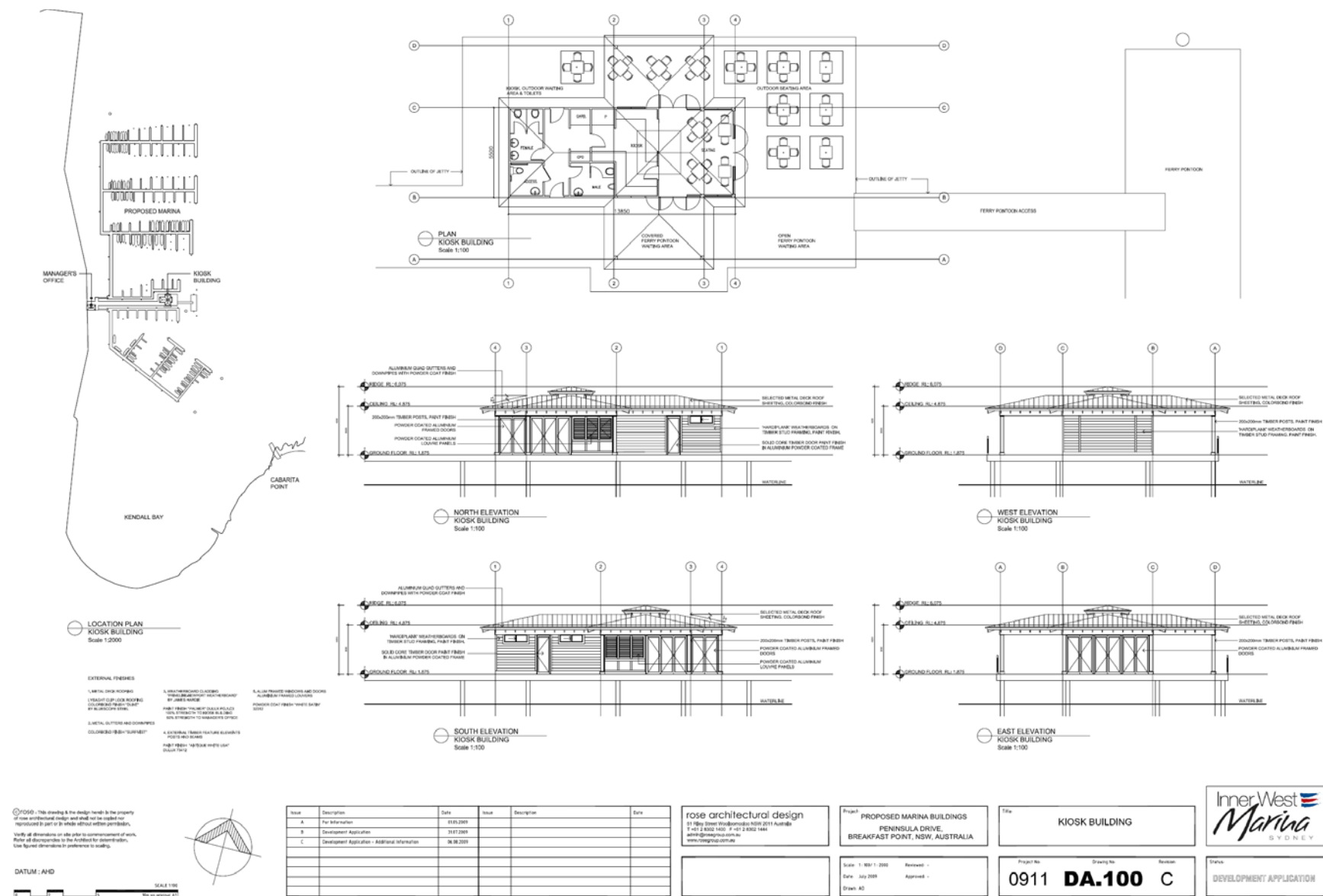
The **land-based component** would occupy a parcel of land in Breakfast Point, one block back from the waterfront, behind existing residences fronting Kendall Bay. It would include:

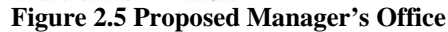
- A 58-vehicle private car park;
- Garbage storage; and
- Small vehicle (motorised golf buggy), or cart/trolley storage.

The **riverbed component** includes the installation of structures to support the Marina and the installation of a sediment protection system to manage contaminated sediments under the Marina. This would consist of:

- laying a geotextile 'blanket' over the contaminated bed sediments and then covering it with rock ballast to hold it in place; and
- installing piles through the blanket, into the riverbed. Piles would be used to support the fixed jetty and other structures on the Marina such as the cafe and office.







3 COMMISSION ACTIVITIES

3.1 PUBLIC HEARINGS AND SUBMISSIONS

In accordance with the Commission's terms of reference, public hearings were held on 23 and 24 February 2011 at the Concord Community Centre. A total of 38 verbal submissions were made to the Panel at the hearings, comprising 1 from the City of Canada Bay Council, 9 special interest groups and 28 individuals. All persons seeking to be heard were heard. In addition 28 written submissions were also made to the Commission. A summary of these submissions is at Appendix C of this Report.

A total of 343 submissions were provided by the Department of Planning to the Commission for their information. A summary of the issues raised in these submissions is provided in Appendix B to this Report.

3.2 DOCUMENTS, MEETINGS AND SITE INSPECTIONS

Through the course of the review the Commission accessed a wide range of documents including:

- The Proponent's Environmental Assessment;
- The Proponent's Response to Submissions;
- Submissions from government agencies, special interest groups and the public;
- Australian Standard AS3962 – 2001 Guidelines for the Design of Marinas;
- The RTA's Guide to Traffic Generating Development 2002;
- NSW Boat Ownership and Storage Growth Forecasts to 2036, NSW Maritime;
- The Department of Planning's Draft PAC Issues Paper: Kendall Bay Marina;
- Environmental Risk Assessment for Sediments Adjacent to the former AGL Mortlake Site, prepared for AGL Pty Ltd. URS 2006;
- Human Health Risk Assessment of Estuarine Sediments Adjacent to the former AGL Mortlake Site, prepared for Alinta Ltd. URS 2007;

During the review, the Commission met with the Department of Planning (17 and 22 December 2010), the Department of Environment, Climate Change and Water (17 December 2010 and 23 March 2011), the City of Canada Bay Council (14 February 2011), Sydney Ferries (18 February 2011), NSW Maritime (18 February 2011), Jemena (18 February 2011) and the Proponent (14 February 2011).

The Commission visited the site on 22 December 2010 with the Department of Planning and each of the Commission members subsequently returned to the site a number of times.

The Commission met formally on 6 occasions.

4 CONTEXTUAL MATTERS

4.1 STRATEGIC CONTEXT

4.1.1 Background to the Site

From 1886 up until the 1990s the area adjoining Kendall Bay was occupied by the Mortlake Gasworks (see Figure 4.1). Gas was produced primarily from coal which was delivered to the site by colliers (Blaxell, 2008). Carbonisation and gasification processes were used to manufacture town gas from the coal, with liquid and tar byproducts. Coke was a solid residue. Town gas was manufactured from petroleum naphtha in the latter years of operation on the site. The byproducts from gas making contained ammonia, phenol, cyanide and a range of aromatic and sulfur compounds (APP Corporation, 2002). The processing and handling of these materials contributed to the contamination of the gasworks site (APP Corporation, 2002). While this would also account for some of the riverbed contamination, some also appears to be due to coal spillage from the colliers unloading at the site wharf and to leaks or spills from the handling of liquids and tars on the waterfront.



Figure 4.1 Breakfast Point and surrounds, circa 1943

The former State Pollution Control Commission (now DECCW) required the remediation of the gasworks site, which occurred over a number of years. In 2002, an accredited site auditor provided site audit statements certifying the suitability of the majority of the site for most residential purposes (other areas of the site were certified as suitable for recreational open space or commercial and industrial purposes only, due to the level of remediation undertaken). The majority of the site is now zoned as General Residential under the *Canada Bay Local Environmental Plan 2008*.

A master plan for the development of the site was initially prepared in 1999, but was subsequently superseded by the 2002 Master Plan, approved by the City of Canada Bay in September 2002. The 2002 Master Plan indicated that a marina may be proposed at Kendall Bay in the future (connected to the wharf, which was intended to be refurbished). A waterfront activities precinct was also shown and provision was made for 100 car-parking spaces for a future marina.

In 2006, the then Minister for Planning approved a concept plan application for the development of the undeveloped portions of Breakfast Point. The Concept Plan supersedes the 2002 Master Plan, in the areas where the concept plan applies.

The car park area is covered by the Breakfast Point Concept Plan and was proposed to be developed with townhouses in the original plans, however, in its assessment of the Concept Plan, the Department noted that parking would be required, should the Marina Proposal proceed. Consequently the Concept Plan approval provided for car parking on the site and the most recent modified plans reflect this.

While the gasworks site has now been remediated and is largely redeveloped, the riverbed contamination remains. Contaminants identified in the sediments in Kendall Bay include petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), cyanide, mercury and the BTEX group of compounds (benzene, toluene, ethylbenzene and xylene).

In 2004, the Environment Protection Authority (EPA) declared the sediments of Kendall Bay and the Parramatta River, within 200 m of the former gasworks, to be a remediation site under Section 21 of the *Contaminated Land Management Act 1997*. The sediments in the Bay were found to be contaminated with PAHs and petroleum hydrocarbons.

In 2005 the Australian Gas Light Company, now trading as Jemena Ltd entered into a Voluntary Remediation Proposal under the *Contaminated Land Management Act 1997*. In addition to the previously identified PAHs and petroleum hydrocarbons, the proposal also identified cyanide and BTEX as potential contaminants of concern. Both Human Health and Ecological Risk Assessments were subsequently prepared. As a result, Jemena now propose to remediate two distinct remediation areas within Kendall Bay (see Figure 4.2) and DECCW has agreed that these remediation areas are appropriate to address the human health risks identified.

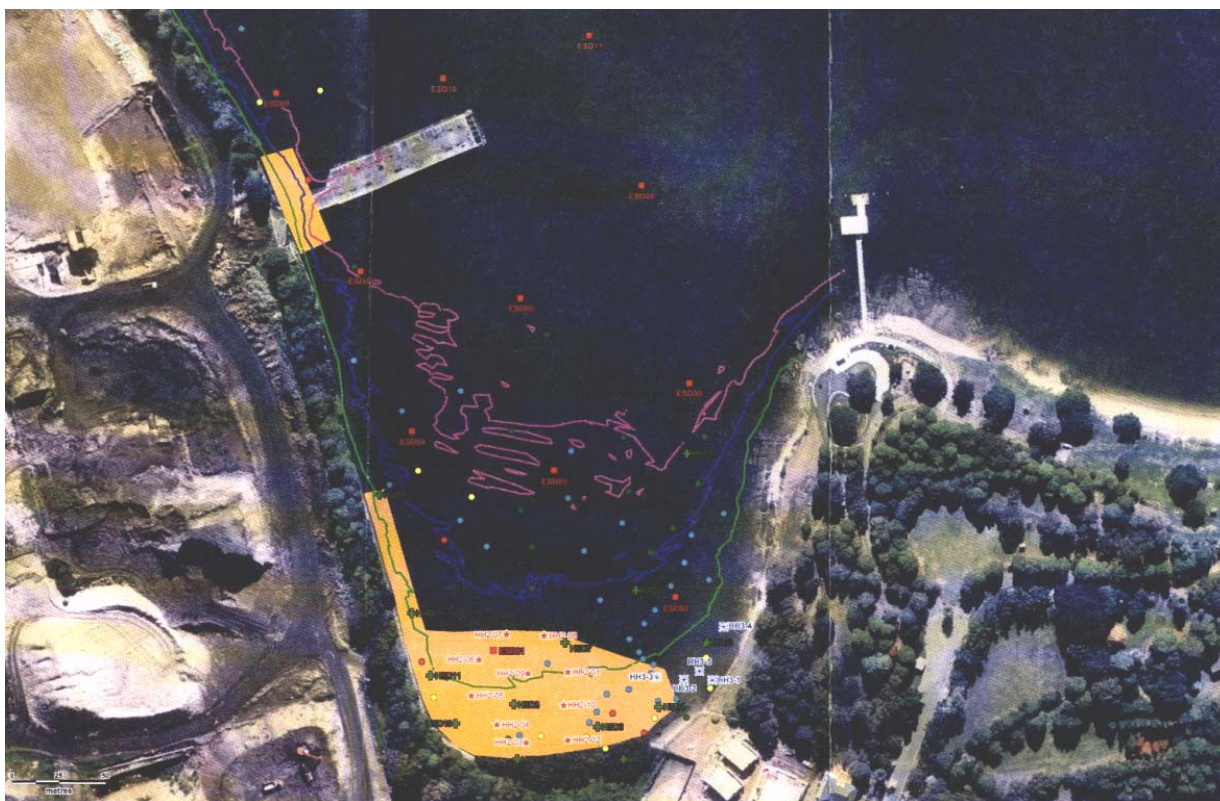


Figure 4.2 Jemena's proposed remediation areas in Kendall Bay, shown in orange

The proposed remediation works would require approval from the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979*. In 2008, the Department of Planning issued Director-General's requirements for the proposed remediation works, however, the Commission understands that Jemena are yet to lodge the Environmental Assessment required to progress their application.

In 2007, the EPA also placed a remediation order on the site, ordering NSW Maritime to: "refrain from carrying out, causing, permitting or allowing other persons to carry any works or activities that would result in the disturbance, or further disturbance, of the sediment...except as provided by this order".

The remediation order noted that the critical issue is to minimise the disturbance and migration of the contaminants in the bed sediments of the site.

The Commission understands that the sediment protection system has been proposed in order to address the do-not-disturb requirement and the Commission has considered the suitability of this system in detail in Section 5 of this report. Nonetheless, the contaminated sediments in the Bay and the riverbed would remain in place and would continue to be subject to the EPA's remediation order, requiring that sediments are not further disturbed.

4.1.2 Project Need

The Proponent's main justification for the proposal is that there is a significant demand for vessel berths, particularly west of the Sydney Harbour Bridge. The Commission has considered this issue in detail in Section 10.

The Proponent also argues that the proposed Sediment Protection System would reduce the risk of contaminants entering the water column, improving on the existing situation in the Bay and providing a public benefit. Other public benefits identified by the Proponent include:

- Enhanced waterway access and experience through the provision of pick up and drop off berths and day tripper berths;
- Enhancement of the foreshore with the provision of the kiosk and jetty; and
- Disabled access at public berths.

4.2 STATUTORY CONTEXT

4.2.1 Major Project

The proposal meets the criteria in *State Environmental Planning Policy (Major Development) 2005* (Schedule 1, 14 Marina Facilities) as it is a development for the purposes of a marina with berths for more than 30 vessels in Sydney Harbour. Consequently, the proposal is a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* applies.

4.2.2 Permissibility

The proposed Marina would be developed within Kendall Bay, within “Zone No W1 – Maritime Waters”, of the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*. The objectives of this zone are:

- (a) *to give preference to and protect waters required for the effective and efficient movement of commercial shipping, public water transport and maritime industrial operations generally,*
- (b) *to allow development only where it is demonstrated that it is compatible with, and will not adversely affect the effective and efficient movement of, commercial shipping, public water transport and maritime industry operations,*
- (c) *to promote equitable use of the waterway, including use by passive recreation craft.*

Commercial marinas are permissible with consent in this zone, together with any associated facilities including sewage pump-out, car parking, commercial, tourist or recreational or club facility that is ancillary to a boat storage facility.

The permissibility of the proposed 50-seat ‘kiosk’ has been questioned in submissions, as ‘water-based restaurants and entertainment facilities’ are prohibited in this zone. The application describes the facility as a kiosk, rather than a restaurant, to be operated from 7 am to 6 pm, 7 days a week.

While restaurants and kiosks are not defined in the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* the Commission has considered the definitions used in the *Canada Bay Local Environmental Plan 2008*, which are consistent with the definition in the *Standard Instrument – Principal Local Environmental Plan*. Under the *Canada Bay Local Environmental Plan 2008* the gross floor area of a kiosk must not exceed 30 m². The proposed building would have a gross floor area of approximately 75 m² and the plans indicate that over half of the building would be occupied by the ‘kiosk’, with a gross floor area in excess of 35 m². The proposed facility also appears to fit the definition of a restaurant as its principal purpose would be to provide food or beverages for consumption on the premises, whether or not takeaway is also provided.

Consequently the Commission considers that it may be possible to characterise the proposed facility as a restaurant. If this view prevailed then, because it would be water-based, it is likely to be a prohibited development.

Development in Kendall Bay is also restricted by the Remediation Order issued by the Environment Protection Authority (EPA). The Remediation Order, orders the Maritime Authority of NSW (as the owner of the bed of Kendall Bay and the Parramatta River) to:

- 1. refrain from carrying out or causing, permitting or allowing another person to carry out any works or activities at the site that would result in the disturbance, or further disturbance, of the bed sediment of Kendall Bay and the Parramatta River in the area adjacent to the former Mortlake gasworks site and which fall within 200 metres of the land based boundary of the former gasworks site except as provided by this Order. Examples of the types of works or activities that may come within the scope of this Order include: construction and maintenance works such as dredging or excavation activities for boating facilities (for piers, wharves, slipways or marinas) or infrastructure works (including bridges or pipelines).*
- 2. Prior to commencing any such works or activities described or referred to in paragraph 1 above, the person proposing to conduct the works or activities must prepare and submit for the EPA's approval a written plan with specific measures directed at minimising the disturbance and migration of the contaminants in the bed sediments of the site. Prior to being provided to the EPA, the report must have been reviewed by a site auditor accredited under the Act in relation to the suitability of the plans and revised so that it is consistent with the auditor's comments.*
- 3. The plan submitted to the EPA must be prepared in accordance with the EPA publication titled Guidelines for Consultants Reporting on Contaminated Sites, dated November 1997, as it relates to investigation and/or remedial action plans.*
- 4. The person proposing to conduct the works or activities must have the plan audited by an accredited site auditor in accordance with Part 4 of the Act before submitting the plan to the EPA for approval.*
- 5. EPA may approve the plan as submitted or approve the plan subject to a requirement that additional mitigation measures be implemented. The person proposing to conduct the works or activities cannot commence such works or activities until the management plan submitted to the EPA has been approved in writing.*
- 6. The works or activities must be carried out in accordance with the management plan approved by the EPA.*
- 7. On completion of the works or activities, the person having conducted them must prepare, and furnish the EPA with a report which addresses the manner in which the works were implemented and how the plan was complied with.*

The Commission has carefully considered the proposed Sediment Protection System in Section 5 of this report. Nonetheless, should the project proceed, it would also need to be

reviewed by an accredited site auditor and then approved by DECCW prior to any work being undertaken on site. The Commission understands that this is yet to occur.

The proposed car parking area is zoned R1 General Residential in the *Canada Bay Local Environmental Plan 2008* and car parks are permitted with consent in this zone.

4.3 ENVIRONMENTAL PLANNING INSTRUMENTS

A number of State Environmental Planning Instruments apply to the project, particularly the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (which, since 1 July 2009, is taken to be a State Environmental Planning Policy) and *State Environment Planning Policy No. 55 – Remediation of Land*.

Aspects of the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* have been considered in detail in the Commission's assessment of issues such as visual impacts and navigation and safety. In particular, the Commission has considered the aims of the plan, especially aim (1) (d):

to ensure a prosperous working harbour and an effective transport corridor,

and aim (2):

(a) Sydney Harbour is to be recognised as a public resource, owned by the public, to be protected for the public good,

(b) the public good has precedence over the private good whenever and whatever change is proposed for Sydney Harbour or its foreshores,

(c) protection of the natural assets of Sydney Harbour has precedence over all other interests.

The matters for consideration have also been considered, particularly clauses:

25 Foreshore and waterways scenic quality;

26 Maintenance, protection and enhancement of views; and

27 Boat storage facilities.

State Environment Planning Policy No. 55 – Remediation of Land (SEPP 55) aims to “promote the remediation of contaminated land for the purposes of reducing the risks of harm to human health or any aspect of the environment”. The Commission has considered the contamination of the site and the proposed management in detail in Section 5 of this report.

5 IMPACTS OF THE MARINA ON MANAGEMENT OF CONTAMINANTS

5.1 CONTAMINANT DISTRIBUTION IN THE BAY

In 2002, the NSW EPA declared as a remediation site, the sediments in Kendall Bay and the Parramatta River in the area adjacent to the Mortlake gasworks that fall within 200 m from the land-based boundary. This was based on findings of total polycyclic aromatic hydrocarbons (PAHs) above the ANZECC/ARMCANZ (2000) sediment quality guideline concentrations, the presence of significant concentrations of total petroleum hydrocarbons (TPHs) and separated phase product in the sediments. There were potential exposure pathways for contaminants to biota and to humans. Disturbance of the sediments could mobilise the contaminants and the prospect of this was likely to increase with development of the area. The declaration allowed the proponent to submit a voluntary remediation proposal.

The Australian Gas Light Company (AGL) (now Jemena) submitted a voluntary remediation proposal to the then Department of Environment and Conservation (now DECCW) in September, 2005. This included proposed field assessments for completion in 2006, and the development of a planned remediation strategy to deal with the identified contaminants, PAHs, TPHs, cyanide, and benzene, toluene, ethylbenzene and xylene (BTEX) and for subsequent approval and implementation. A letter to DECCW in September 2009 indicated a plan to commence the remediation plan on April 30, 2011 or 'such other date as agreed to by the EPA'. It was subsequently agreed that remediation would occur at the eastern end of the Bay (Area A in Figure 5.1) and in the near-shore area encompassing the old wharf (Area B in Figure 5.1).



Figure 5.1 Map of Kendall Bay showing Jemena's proposed remediation areas

This decision was based on extensive studies undertaken for Alinta (formerly AGL and later Jemena) to assess the distribution of contaminants in the sediments of Kendall Bay (URS, 2006a, b) with a second set of studies being carried out later by the Proponent (AECOM, 2009). The URS investigations were reasonably comprehensive with a good spatial distribution of sampling sites and samples taken to as deep as 50 cm at a number of locations.

The samples were analysed only for organic contaminants and not metals, based on the assumption that there were no metal contaminants associated with the AGL operation. The analytical data showed elevated concentrations of TPHs and PAHs, to depths of 40 cm in some cases, in particular at the sites in Areas A and B. In addition, high PAH concentrations were found in near shore sediments on the western-most shoreline. Based on the results of a human health risk assessment, significant risk of harm was found to exist to persons in these particular near-shore Areas A and B due to dermal exposure to sediments and pore waters and potential ingestion of sediments. High PAH concentrations were also found close to the western shore area, but this site was not as easily accessed and was therefore deemed a lower risk.

Environmental risk was assessed in the second URS report (URS, 2007b). The measured PAH concentrations significantly exceeded the upper sediment quality guidelines (ISQG-high) for the protection of ecosystem health in what was defined as 'the remediation zone' extending 200 m offshore for the full shoreline of the site. While the greatest concentrations were closest to shore, exceedances were found for individual PAHs throughout the area including at sites 200 m from shore. If PAHs were grouped into low and high molecular weight PAHs, the exceedances were greatest at the near-shore sites and at 200 m from the shore. Values were typically between the upper and lower guideline (ISQG-low) for both classes. At the time of writing this report (URS, 2007b), there was no guideline for TPHs so that could not be assessed. A recent revision of the ANZECC/ARMCANZ sediment quality guidelines by CSIRO recommended values of 275 and 550 mg/kg for the lower and upper guideline respectively (Simpson et al., 2008). These were exceeded by two orders of magnitude at the eastern-most site closest to the mangroves, but was typically a factor of 10 or more above the lower guideline at sites throughout the remediation zone, but greatest nearest to shore. In general there was a gradient of contaminant concentrations from the shoreline outwards. This was also partly related to sediment grain size with the coarser-grained samples closer to the main channel having lower surface areas and less binding sites with lower contaminant concentrations.

Exceeding the upper guideline represents a high probability of biological effects, while below the lower guideline the probability of effects is low. It would therefore be expected that effects on biological communities would be evident. This was confirmed by a later ecological survey undertaken by Cardno Ecology Lab (2009a, b) which found that there were less benthic biota present in the contaminated sediments compared to nearby unimpacted sites.

The more recent survey undertaken by AECOM (2009) involved only the sampling of surface sediments to a depth of 10 cm. Their analysis basically confirmed the findings of URS (2006a) with respect to organics, but provided additional data on metals. Elevated concentrations were observed for zinc, lead and mercury. Of particular concern was that mercury exceeded the sediment quality guideline trigger value from 10-30 times at a range of sites beneath the footprint of the proposed Marina, and was 2-6 times the upper guideline value. This represents a potential threat to ecosystem health.

Metal contaminants such as mercury, zinc and lead are persistent (i.e. unable to degrade), but, because only the surface few millimetres are aerated or oxic, they are typically present as insoluble sulfides that have low bioavailability. Introducing oxygen into the sediments as would occur by physical disturbance results in the previously anoxic areas becoming oxic and the sulfides can be oxidised and the metals released. The pH of the sediments also decreases

marginally as a result of sulfide and iron oxidation, which also helps promote metal sulfide dissolution. There can therefore be a flux of soluble metals to the overlying water with the potential for biological impacts. There are also scavenging processes that result in the attachment of released metals to particles and re-deposition, but this may take place away from the point of release. In the case of mercury, there is the possibility of microbial methylation which can lead to the production of highly toxic methyl mercury. The WHO human health guideline recommends a safe level for mercury of 0.05 mg/kg body weight. A child would need to be ingesting at least 60 g of sediment/week to be at risk. It is nevertheless surprising that there was no discussion of mercury at least in the AECOM reports.

In terms of the more general processes governing contaminant behaviour in sediments, the most important is the partitioning from the solid sediment to the associated sediment pore waters, to the extent that there can be soluble concentrations of many contaminants in the pore waters that exceed their concentrations in the overlying water. These contaminants slowly diffuse out of the sediment into the overlying water where they are rapidly diluted and dispersed by water movement. Organic contaminants are poorly soluble and in sediments are very slowly degraded by microbial processes that for some contaminants may take decades.

While the diluted concentrations of contaminants in overlying waters pose no threat to aquatic biota, ingestion of sediment particles or exposure to pore water is a source of contaminants to benthic biota, i.e. those living on or in the sediments.

5.2 PROPOSED DREDGING BY JEMENA

The Jemena remediation proposal deals with two areas (A and B in Figure 5.1). Site B at Hunters Wharf includes the access jetty to the proposed Marina. Remediation will involve dredging of sediments and removal to the eastern end of the site and subsequent transfer to a waste disposal facility. The dredged areas will be infilled with clean sediment. This action will remove the sediments of greatest risk to human health.

The Commission is in agreement with Jemena whose representatives in oral evidence to the Commission stated that this remediation would need to be completed before any development could be undertaken in these areas.

5.3 SEDIMENT CONTAMINANT MANAGEMENT OPTIONS

There are a number of options for management of contaminated sediments that are practiced worldwide. These have been summarised by the USEPA (2005) and basically amount to:

- (i) natural remediation (generally described as the 'do nothing option', but may involve regulatory controls on further contamination or disturbance), or
- (ii) the use of capping materials, or
- (iii) dredging.

In the absence of any marina, there would be slow diffusion of contaminants from pore waters that would result in a depletion over time of those contaminants in the surface sediment layers. Natural sedimentation of river-borne sediments plus those entering via stormwater drains can typically deposit around 0.5 cm/year of cleaner materials in near shore areas that result in natural remediation. Over time, a new ecosystem re-establishes on the cleaner overlying sediments. The north of Lake Macquarie, NSW is an example where lead and zinc contaminated sediments are now overlain by a healthy ecosystem in clean sediments.

There are a number of approaches to the use of capping materials. The most common is to cap contaminated sediments with clean sediments. Experiments undertaken by CSIRO (Simpson et al., 2002) showed that this is as effective for metal contaminant in estuaries as the use of zeolites or other contaminant binding materials added to the sediment surface. For highly contaminated sites, the use of geotextile barriers has also been used. These are designed to stop particle migration, however, pore water migration still occurs, although the rate of diffusion may be partially attenuated by the thickness of the blanket. To further inhibit migration of pore water contaminants, it is usual to add a layer of clean sediments.

The dredging of sediments from the less contaminated sections of the Bay would be an expensive exercise (estimated in excess of \$100M). It is not a commonly practised approach for this level of contamination. DECCW in evidence to the Commission indicated that it considers that the 'do nothing' option is currently the appropriate option based on the risk assessment and the available remediation technologies. This is a similar approach to that taken in other nearby contaminated sites, such as Abbotsford Bay. A newer in situ technology involving zerovalent iron, that is highly relevant to hydrocarbon-contaminated sites, is currently being developed at the University of NSW in collaboration with the USEPA, DECCW and CSIRO. DECCW considers that this may be applicable to Kendall Bay contamination at some future date.

5.4 IMPACTS ON SEDIMENT CONTAMINATIONS OF THE PROPOSED MARINA

DECCW advised the Commission that an imperative for the operation of any marina in Kendall Bay is that there should be no mobilisation of contaminants as a consequence of its operation. Such mobilisation would occur as particles containing associated contaminants are resuspended in the overlying water, and as pore waters enriched in contaminants mix with surface waters. In a marina, the potential for increased movement of both dissolved and particulate contaminants is especially high given the substantial energy associated with the necessary manoeuvring of boats to enter and leave the proposed berths and the increase in boat traffic in the bay (particularly larger boats).

At least one of the public submissions highlighted the potential contaminants that marinas will introduce. These include detergents and other grey water constituents that tend to be discharged from moored boats, in addition to waste materials that might be discarded overboard. A more significant contribution comes from the antifouling paints used on the boat hulls. These are largely copper-based, many with added herbicides. Copper build up in sediments underlying marinas can accumulate (Schiff et al., 2006) to concentrations in excess of sediment guideline concentrations (ANZECC/ARMCANZ, 2000).

5.5 PROPONENT'S PROPOSED SEDIMENT MANAGEMENT STRATEGY

The Proponent has proposed the use of a geotextile cover over bottom sediments that would encompass an area directly below the proposed Marina and extending beyond as shown in Figure 5.2. Some 168 piles supporting the Marina structure will go through the proposed 7 mm thick geotextile cover and will be appropriately sealed to prevent sediment egress. The geotextile blanket will be covered with basalt rock fragments to a depth of approximately 300 mm, with the objective of holding the blanket in place. The Proponent advises that the size of these rocks will average around 100 - 220 mm.

Seals will be made for 168 piles that will be driven through the cap in construction of the Marina. Further natural sedimentation would form on the cap during the life of the Marina.

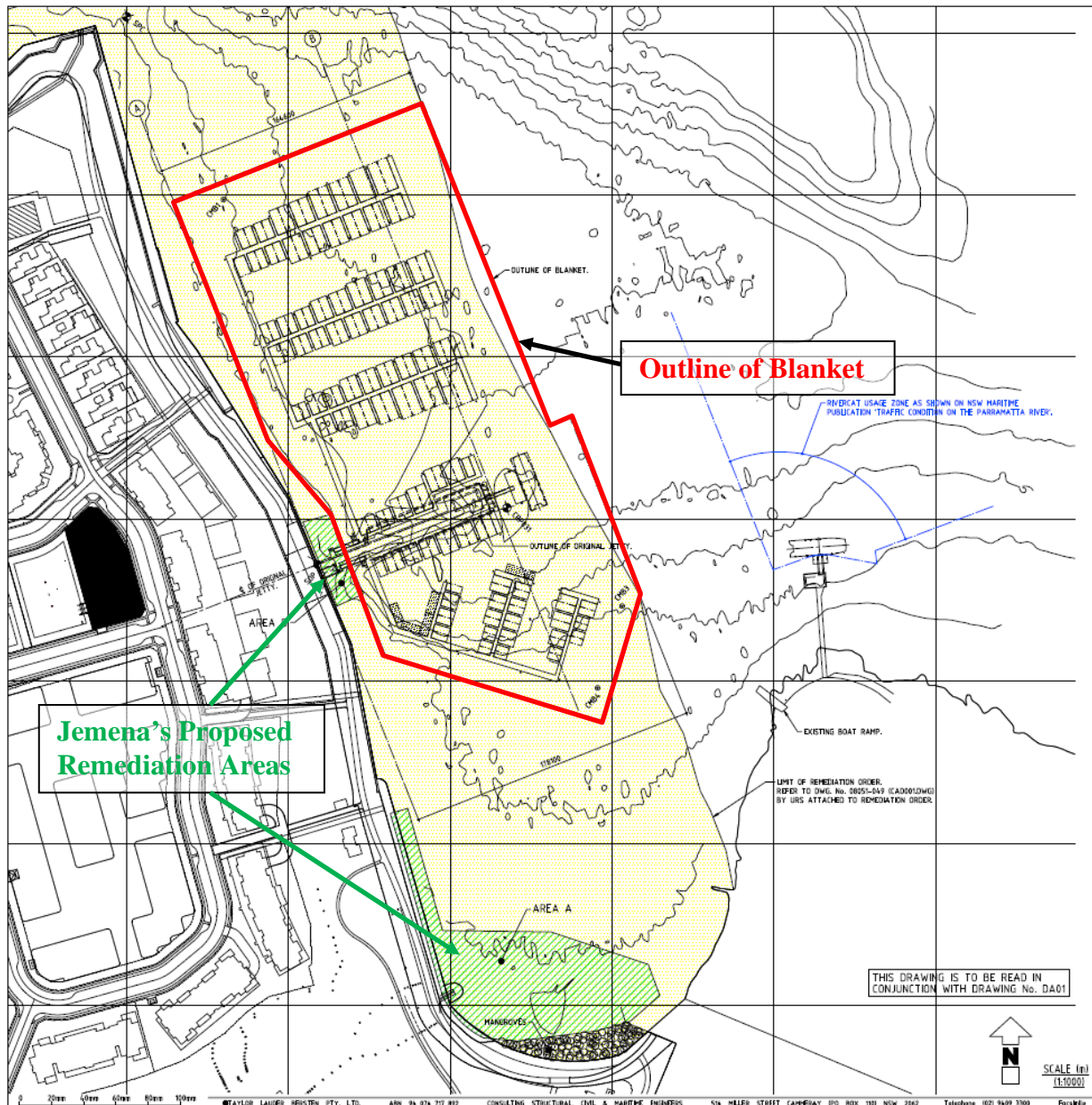


Figure 5.2 Map showing the plans for the Marina and the area of the Bay proposed to be covered by the geotextile blanket

5.6 IMPACTS DURING CONSTRUCTION

Concern has been raised in submissions about the mobilisation of silt and expulsion of pore water during construction of the cap. The compression of the cap layer (even greater if a thicker cap were to be used, as discussed following) will expel contaminated pore water (see discussion above). Extraction of some temporary piles will also remove some pore water and sediment, depending on how it is undertaken. If screw piling techniques were used, as discussed elsewhere, it is possible that the mobilisation of contaminants could be greater. However, this will be a once only discharge, during the construction phase, and does not seem to be a major factor in the overall assessment of the effectiveness of any cap. The greatest risk due to any physical weakness in the underlying sediments will be at the edges of the capped area where the thickness of the rock armour is proposed to be 0.5 m. If the underlying sediments have inadequate strength to support this load, then expulsion of significant amounts of contaminated sediment from under the edges of the cap may occur.

This effect could be exacerbated if a thicker cap were used. A better assessment of the strength of the underlying sediments is needed, especially in the edge areas.

The effectiveness of silt screens or curtains to contain sediments during construction is important in minimising mobilisation of sediments into the wider environment. The proposed double-screen system should be amenable to the optimisation of any engineering design. Great care would, however, need to be exercised during operation to ensure maximum effectiveness. Nevertheless, some loss of sediment material from the curtailed construction zone would be inevitable, and monitoring would be essential. Such screening is not able to contain soluble contaminants in the pore water expelled from the sediments.

5.7 DURABILITY OF THE PROPOSED CAP

The Proponent has claimed a 100-year life for the sediment cap, consisting of a 6-7 mm thick polyester (PET) geotextile blanket armoured with a 300 mm layer of basalt rock. The risks of deterioration of the cap over such a relatively long period are substantial. Mechanical damage due to boating activities at the Marina, breakdown of the geotextile material due to abrasion and combined chemical and biological action on the fibres are all factors that can contribute to failure of the cap and are difficult to evaluate over this relatively long period.

The Commission requested evidence from the Proponent in support of the claim for the life of the cap. The Proponent has provided evidence of satisfactory life of geotextile blankets in situations of severe physical stress of the order of 20-30 years (Heerten, 1984; Rollin, 2004). Modelling has been proposed for extension of life projections to longer periods but, in the Commission's opinion, such models without validation provide little assurance. Depending on the choice of polymers, resistance to chemical deterioration can be demonstrated in the medium term. The problem in the proposed situation is that chemical, biological and physical factors will combine in ways difficult to simulate in laboratory tests. These factors pose a threat to the long-term integrity of the geotextile material. The conditions in the contaminated sediment below the blanket will be anaerobic and the interaction of anaerobic microorganisms with the contaminants present in such a way as to cause deterioration of the blanket, or to increase mobility of some of the contaminants, cannot be discounted.

All other evidence to the Commission suggested a considerably shorter life, with DECCW suggesting 30 years might be a more realistic figure. The Commission's view accords with that of DECCW and, for the purposes of its assessment, the Commission considers that the geotextile blanket with rock armour layer may be physically stable for 30 years if installed and operated as proposed. But there remains considerable uncertainty as to the effectiveness in terms of re-suspension and/or loss of contaminants.

The question of liability should the geotextile cover fail in the decades after its placement would need careful consideration. This was a specific issue raised in the submission from DECCW. The Breakfast Point Residents Association is concerned that this liability might fall on residents.

5.8 IMPACT OF THE PROPOSED CAP ON CONTAMINANTS

As proposed, the intention of the cover is only to prevent migration of particles, and there was some concern expressed about the ability of the selected blanket thickness to prevent movement of the finest particles ($<75\ \mu\text{m}$). Unlikely though this may be, it would clearly need to be demonstrated in advance by appropriate testing. Clearly the blanket is permeable

to pore waters and any cover will therefore represent an ongoing source of dissolved contaminants.

The Proponent makes reference to the remediation of San Diego Bay as an example of the use of geotextiles for contaminated sediments. Both the Commission and some submitters investigated the claims made in the context of the Kendall Bay proposal.

The USEPA manual on dredged sediment remediation (USEPA, 2005) specifically deals with the use of capping materials in Chapter 5:

“Caps are generally composed of clean granular materials, such as upland sand-rich soils or sandy sediment; however, more complex cap designs could be required to meet site-specific RAOs. The project manager should take into consideration the expected effects of bioturbation, consolidation, erosion, and other related processes on the short- and long-term exposure and risk associated with contaminants. For example, if the potential for erosion of the cap is significant, the level of protection could be raised by increasing cap thickness or by engineering the cap to be more erosion-resistant through use of cap material with larger grain size, or by using an armor layer. Porous geotextiles do not contribute to contaminant isolation, but serve to reduce the potential for mixing and displacement of the underlying sediment with the cap material. A cap composed of naturally occurring sand is generally preferred over processed sand because the associated fine fraction and organic carbon content found in natural sands are more effective in providing chemical isolation by sequestering contaminants migrating through the cap. However, sand containing a significant fraction of finer material may also increase turbidity during placement.”

The Commission confirmed the recommended use of a sand or equivalent substrate over geotextiles to impede contaminant movement with a US expert (Dr David Moore, formerly US Army Corps of Engineers). Typically, there is a clean buffer interval for benthic infauna (typically 10-15 cm) as well as to prevent contaminant migration (typically an additional 10-60 cm).

The nature and degree of contamination in Kendall Bay and San Diego Bay are different. The San Diego contaminants were dominated by metals with organics as a lesser component, while the reverse is the situation in Kendall Bay. Further, the sediment cap applied in San Diego was more substantial than that proposed for Kendall Bay. Layers of sand and gravel were emplaced above the geotextile blanket and below the rock armouring in San Diego Bay. The total thickness of the cap in San Diego Bay was 1.5 m whereas only 0.3 m of armour rock is proposed for the Kendall Bay cap, with 0.5 m at the edges of the cap.

The San Diego Bay cap appears to have only been in place for about four (4) years and no evidence has been provided as to its effectiveness in containing the contamination capped. Nor has the Commission been able to find any evidence of such an assessment. It notes that the California EPA, in its recent deliberations on a remediation order for a wider area of contaminated sediments in San Diego Bay than the example cited, is recommending that removal and treatment of contamination should be the preferred option where feasible. Capping *in situ* is only considered as a secondary option by this regulatory agency for management of contaminated sediments in areas *“that are shielded to a degree from physical disturbance and where mechanical dredging is not feasible (e.g. under piers or adjacent to structures).”* It nevertheless acknowledges that capping has been applied successfully in some situations in the Bay, although it neither provides nor points to any evidence of the success in terms of contaminant monitoring (CRWQCB, 2011).

A summary of the engineered cap design for San Diego Bay (O'Connor et al., 2006) stated: *"The largest portion of the capped area is an engineered cap designed for permanent isolation of remaining environmental pollutants in bay sediments."*

The engineered cap is composed of a geotextile overlaid by 2 ft. of sand for isolation of pollutants in existing sediments; a 1-ft. layer of well-graded, gravelly aggregate material to act as a filter layer between the overlying armor stone and the underlying sand, while also protecting against bioturbation; and then a final layer of 2 ft. of armoring stone to protect against erosive forces that may be imposed on the capping system.

Additional foundation support, in selected areas overlaying unconsolidated bay sediments at the edge of the cap, was strengthened by placement of a layer of "dumped rock foundation.""

In a more contaminated area, the Campbell Shipyard site, it was noted: *"...a cap was designed and placed over the sediment to separate the contaminated material from the marine environment: a 5-ft.-thick cap—2 ft. of sand, 1 ft. of gravel, and 2 ft. of armored rock."*

This design with a 1.5 m (5 ft) cover is clearly significantly different to that proposed for Kendall Bay (only 0.3 m of rock armour and no sand or gravel).

It is notable that in a letter from Douglas Partners to Breakfast Point Pty Ltd on February 21, 2011, it was stated that: *"Consideration should also be given to initially placing a layer of sand over the geotextile before rock fill. Full scale trials would enable a contractor to fine tune his equipment and procedures. A layer of reclaimed sand was successfully placed over very soft sediments to form a seagrass habitat in a sensitive part of Botany Bay at the Parallel Runway Project at Sydney Airport in 1993."* The letter went on to say that for the airport they used 0.5 m of sand (without geotextile).

A later comment stated: *"Agree placement of other than a coarse open geotextile (a geogrid) will be difficult. Is a geotextile necessary? Other than as a marker layer in which case a geogrid could be suitable. Further contamination testing of the seabed may show that recent sediments on the seabed are not contaminated as it did at Sydney Airport. Consideration could also be given to placing a sand layer over the geotextile or directly over the soft sediments."*

In its Response to Submissions (Breakfast Point, 2011) the Proponent has referred to four examples of *in situ* capping for contaminant containment with cap thicknesses comparable to or thinner than that proposed for the project (Section 4.3.24). The Commission is not persuaded by these examples:

- At Manistique, Michigan, the cap was only an interim measure and therefore not comparable to the proposed permanent cap at Kendall Bay;
- The Japanese examples involved nutrient containment; again, this is not a comparable situation to the hazardous contaminants to be capped at Kendall Bay;
- At Massena, New York capping was adopted when suction dredging had failed to adequately reduce levels of contamination; also, the capping thickness in practice averaged nearly 80% greater than the 0.46 m nominated and in some cases was several times thicker (Hagerty and Trottman);
- At Hamilton Harbour, Burlington, Ontario the cap referenced was only a demonstration program; Canadian government authorities are proceeding to install a

dry-cap dyked containment facility for the contaminated sediments in Hamilton Harbour (Environment Canada, 2005).

The theoretical calculations submitted by the Proponent in support of the thin cap proposed are not presented in an assessable form and appear to take no account of the mobile contaminants that are present.

In the example of the Port of Brisbane advanced by the Proponent, the objective of using geotextile blankets was to stabilise the weak, soft-clay sub-soil at the seabed, not containment of contaminated sediments (Ameratunga et al., 2007).

5.9 DESIGN ISSUES WITH THE PROPOSED CAP

A range of technical issues has been raised in submissions from public authorities (Canada Bay City Council and DECCW), resident groups and some members of the public with engineering skills. These issues relate to difficulties in underwater placement of the cap, the physical stability of the cap, the ability of the underlying sedimentary layers to support the cap without mobilisation of sediments, the appropriateness of the design of the cap, the possibility of the geotextile membrane sustaining damage during placement of the rock-armour layer, the possibility of damage to the cap by vessels manoeuvring and anchoring at the Marina and the expulsion of contaminated pore water from the sediments under the cap during construction.

The Proponent has responded to these issues claiming that they can be satisfactorily addressed by engineering design and implementation and by marina management. The Commission, however, cannot be certain on the basis of the information submitted by the Proponent that the design and management measures proposed will be adequate to prevent additional disturbance and migration of the contaminants in the bed sediments. This uncertainty is heightened by:

- (i) the departure of the design of the cap from recommendations of authorities with experience in sub-aqueous capping of contaminated sediments (US EPA, 2005; Palermo et al., 1998), as discussed above; and
- (ii) the fact that the management measures largely need to be implemented by third parties (the boat owners and operators) and often when marina management is not on-site.

Increasing the thickness of cap by adding layers of sand and gravel not only contributes to the effectiveness of the cap in preventing movement of contaminants out from the sediments by diffusion and bioturbation, but it also increases the physical stability and durability of the cap against movement and deterioration. However, should the cap need to be subsequently removed for remediation of the contaminated sediments, such a task would become that much more difficult and expensive.

Lateral stability of the rock covered geotextile blanket has also been questioned, given the slope of the floor of Kendall Bay and the uncertainty as to the strength of the sediment layers. The risk is that the cap will slowly slide down the slope, stretching the geotextile blanket between the restraining marina piles. The steepest slopes are found in the dredged areas adjacent to the former wharf for unloading coal to the gasworks. Initial infilling of these 'troughs' could reduce this problem, but it would raise issues of sediment disturbance and consolidation, and it would reduce the draft for vessels, which appears to have been relied upon in the Marina design. Application of a restraining metal mesh or of heavy bars to anchor the blanket to the Bay floor, as has been used elsewhere, would be complicated by the

irregular slopes in the areas of greatest concern. A more substantial cap with sand and gravel layers may improve stability, but the strength of the underlying sediments would then become more critical and would need better definition than is presently available. The Proponent was unable to satisfy the Commission that the geotextile blanket would be stable under the proposed cap.

5.10 MARINA ACCESS WITH A THICKER CAP

As noted above, the San Diego Bay example used a cap thickness of 1.5 m, including 0.9 m of sand and gravel and 0.6 m of rock armour. The required thickness of these sediment layers is an unknown for Kendall Bay and would require substantial further study and modelling to determine, i.e. it could be that more or less clean sediment is required than was used in San Diego Bay. Based on the evidence available to it, the Commission does not consider the proposed cap of a geotextile blanket with 0.3 m of rock armour to be adequate. Pending further study and modelling, it considers that a thickness of up to 1.5 m provides reasonable guidance as to the likely impact of a more substantial cap on marina design.

If a 1.5 m cap was applied, the draft available for boats using the Marina would be reduced by about 1.2 m over that proposed, as indicated in Table 5.1.

Table 5.1 Estimates of water depth under the proposed Marina with and without capping^a

Approximate % of berths at proposed Marina between low-tide water-depth contours	Water-depth contours at low tide with no cap	Water-depth contours at low tide with proposed 0.3m thick cap	Water-depth contours at low tide with thicker 1.5m cap
5	1 to 2 m	0.7 to 1.7 m	0 to 0.5 m
60	2 to 3 m	1.7 to 2.7 m	0.5 to 1.5 m
30	3 to 4 m	2.7 to 3.74 m	1.5 to 2.5 m
5	Plus 4 m	Plus 3.7 m	Plus 2.5 m

^aDerived from drawing DA03 of the Environmental Assessment (TBL Engineers, 2010, Vol 2), showing the marina layout with hydrographic depth contours.

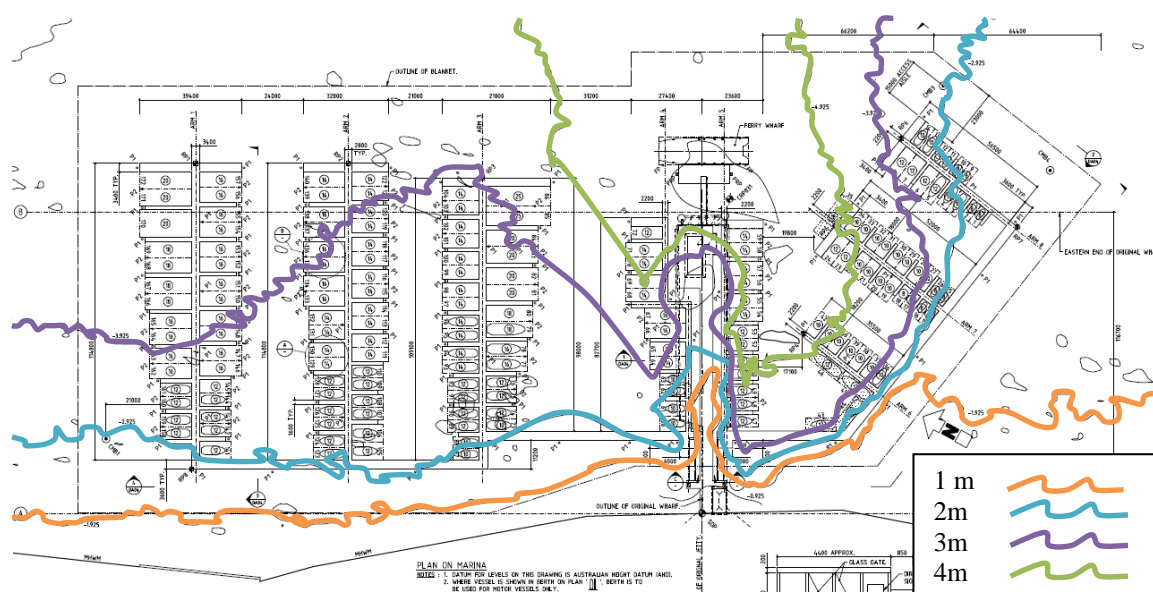


Figure 5.3 Current Water Depth at Lowest Astronomical Tide

This table shows that with a thicker 1.5 m cap a large proportion of the proposed berths (approx 65%) would have a draft of less than 1.5 m at low tide. To ensure the cap was not damaged it would therefore appear necessary to significantly reduce the number of medium-

sized craft allowed to moor at the Marina and to also reduce the total number of craft that could be accommodated. The reduction in size would involve the inshore boundary of the Marina moving further out into the Bay. Whether such an arrangement still resulted in a viable marina design would require a new layout of marina berths to be prepared. The Commission considers that the added depth restriction would significantly detract from the functionality of the proposed Marina, if an appropriate margin of safety in depth was allowed for protection of the cap against the stress of propeller-induced turbulence.

In a detailed engineering analysis of marina design criteria, Mellor compared guidelines for marina design against the designs for several thousand power boats and sailing boats (1992). On the basis of the analysis, he proposed a relationship for minimum water depth (applied to the operational extreme low water level expected) based on power-boat length. Mellor did not recommend a minimum depth of less than 1.5 m for any power-boat berth. He compared his recommendations with various guidelines and noted that the then California State guidelines recommended a minimum depth of 1.8 m. California has formulated marina design guidelines over several decades of experience arising from the extensive marina developments in its waterways. The current California guidelines maintain the earlier recommendation, that is, no minimum water depth less than 6 ft, or 1.8 m, at berths for power or sailing boats (CDBW, 2005, section B, page 10).

If the California design guidelines were followed in conjunction with a minimum 1.5 m cap, then less than a third of the proposed berth area in the Marina as now laid out would appear to be suitable for power or sailing boats.

5.11 IMPACT OF THE CAP ON THE BENTHIC ECOSYSTEM

A geotextile blanket will destroy the integrity of the benthic ecosystem, smothering any existing biota and preventing the necessary contact of burrowing organisms with overlying water used for burrow irrigation and as a source of food. The rock ballast may be partially covered by fine sediment shifted by wave action that will create a new substrate that will be colonised by different biota.

5.12 CONCLUSIONS

The Commission finds that:

- Emplacement of the cap and associated piling would inevitably cause mobilisation of some fine sediments and associated sediment pore waters containing contaminants. Great care would be required to minimise this and confine particle release behind silt curtains.
- The life expectancy of the proposed geotextile barrier is untested but likely to be less than one third of that claimed by the Proponent.
- The physical stability and integrity of the geotextile cover is questionable in the Kendall Bay environment.
- The ability of the proposed cap to prevent additional disturbance and migration of the contaminants in the bed sediments is highly questionable. On the available evidence a much thicker cap consisting of geotextile covered by clean sand and gravel with rock armour on top would be necessary. The thickness of the sediment layers required for Kendall Bay is unknown and substantial further study and modelling would need to be undertaken to determine this. Based on the available evidence the cap may need to be up to 1.5 m thick rather than 0.3 m thick as proposed. An increase of this magnitude would significantly reduce the area available for berthing large vessels.

- Remediation of the agreed near-shore sediments by Jemena should precede any consideration of cap installation because of likely impacts of this dredging on bed geomorphology.
- Remediation of the area of the proposed Marina at some future date is a possibility, especially with the development currently underway of new in situ treatment technologies.
- The presence of a cap would be a major impediment to the adoption of such remediation activities, especially if an appropriate depth of capping is used.
- The cap would destroy the integrity of the existing benthic ecosystem by sealing it off from the overlying water system.
- Outside the two specific areas currently agreed to be remediated by Jemena, the 'do not disturb' approach adopted by DECCW to contaminated sediments in Kendall Bay is appropriate given the current risk assessment and available remediation technologies.
- Construction and operation of a commercial marina in Kendall Bay is not compatible with this 'do not disturb' strategy

6 ACCESS

Positioned on the western side of Kendall Bay, the Marina would adjoin the residential area of Breakfast Point. The proposed Marina site directly connects with the foreshore walkway, with the residential development known as Hunters Wharf on the opposite side of the walkway.

Due to the layout of the existing residential development and the presence of the foreshore walkway, the proposed Marina would not have direct vehicle access. The proposal would include 58 car-parking spaces, however these would be provided on a separate parcel of land, approximately 100 m west of the Marina site.

Access from the car park to the Marina would be via existing footpaths which run around the residential buildings fronting the foreshore (see Figure 6.1). Using these footpaths, pedestrians and their goods would have to travel between 230 to 300 m to reach the entrance to the Marina. Depending on the location of their vessel, marina users could have to travel almost as far again to get to their vessel (a total of up to 600 m from the car park to the vessel). Goods were originally proposed to be transported from the car park to the Marina, and associated vessels, using motorised golf buggies. In response to community concerns about the use of these vehicles, the Proponent has now suggested using hand-drawn trolleys, although the Commission has some concerns about the practicalities of this option (see Section 6.2.3).

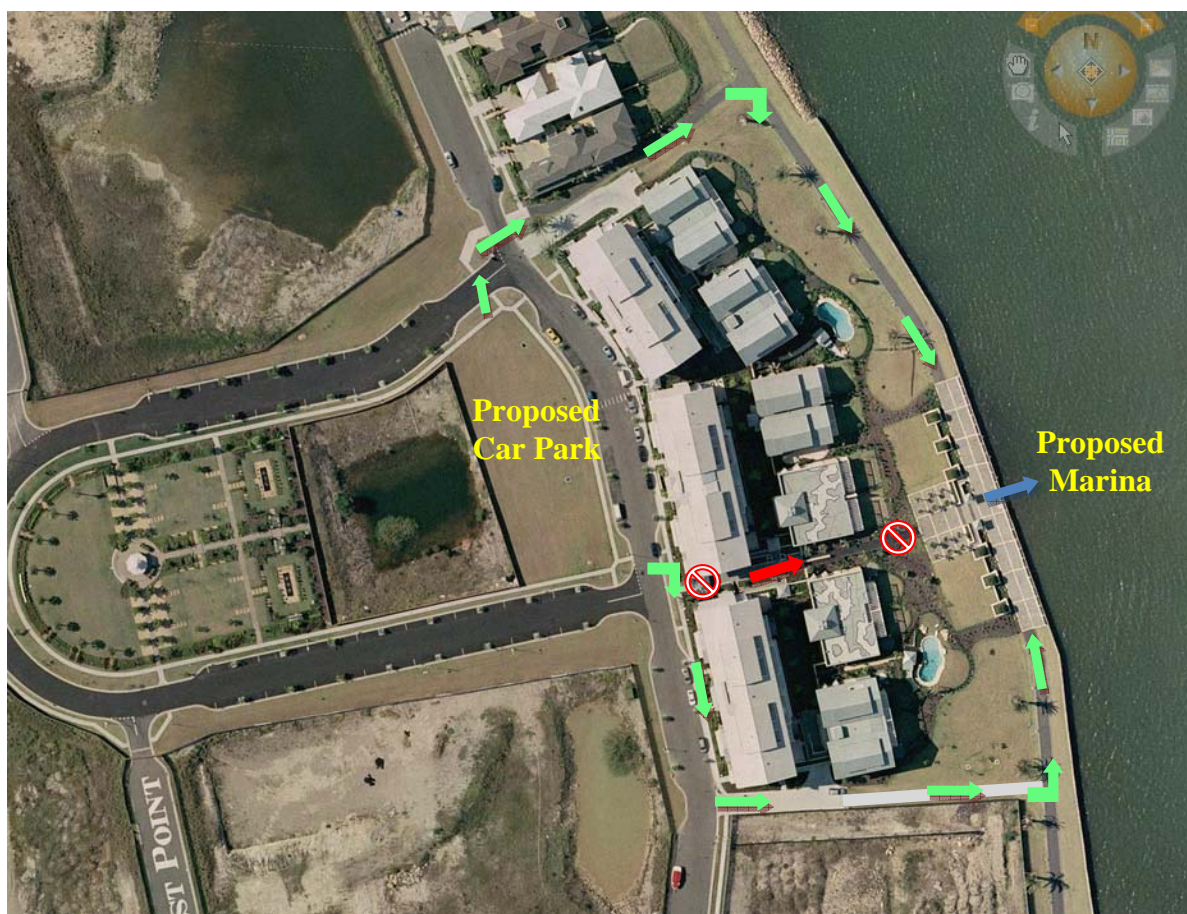


Figure 6.1 Access to the proposed Marina shown in green arrows, (illegal, but currently unrestricted access shown in red)

Practically, access can also currently be gained by walking between the buildings in the Hunter Wharf Strata Title (as shown by the red arrow in Figure 6.1). This access route would be much more convenient, but is through private land and is consequently illegal. It is unclear how the Marina operator would prevent the use of this walkway.

6.1 COMMUNITY PLAN AND LEGAL ACCESS ISSUES

The proposed car park area and surrounding roads and footpaths form part of the Breakfast Point residential development which operates under a community plan and community scheme.

A number of submissions have raised concerns about the access arrangements and have also questioned whether these arrangements would be legal. In particular, concerns have also been raised about the potential liability and financial impacts on the Community Association which is required to maintain all community property including shared infrastructure, such as pedestrian access routes. The Community Association is also understood to indemnify Council against any claim, maintenance or repair relating to the foreshore walkway (known as Lot 501 1052824).

The increased and changed use of the foreshore walkway and footpath to the car park (as a result of the Marina), may increase the Community Association's liabilities with associated impacts on insurance levies payable by the Community Association. While the Commission understands that the owner of the car parking area also pays levies to the Community Association, it is unclear how the Proponent proposes to ensure that these levies would represent an equitable contribution to any costs imposed on the Community Association arising from the operations of the Marina.

Concerns were also raised that the Proponent may not be able to connect to services or carry out essential repairs to infrastructure if this involved obtaining landowners' consent to submit an application that would involve works on Lot 501 DP 1052824 and Lot 1 DP 270347. While the Proponent has indicated that it would not need to undertake works on these parcels of land, as services have already been installed, the Commission expects that additional works, such as upgrades to emergency access routes, may need to be undertaken on this land. Given that many residents and the Council object to the proposal, the Commission is concerned the Proponent would have difficulty gaining permission to undertake such works should they be required.

6.2 PARKING

A total of 58 parking spaces would be provided in a secured parking area. The Environmental Assessment indicated the car park was to be accessible by swipe card only. However, in the Proponent's response to submissions, it now appears that some spaces would be publicly available.

6.2.1 Suitability of the proposed number of parking spaces

According to the RTA's Guide to Traffic Generating Developments, parking demands at marinas vary substantially depending on the season, the type of berth and the type of boats at the Marina. In the absence of survey data from similar marinas, the guide recommends that parking should be provided at a rate of 0.6 spaces per wet berth at the Marina and 0.5 spaces per marina employee. Using the rates recommended in the RTA's guide approximately 105 car-parking spaces would be required to accommodate the 172-berth marina.

The Proponent has instead referred to the Australian Standard AS3962 – 2001 Guidelines for Design of Marinas, which in the absence of traffic and parking studies, recommends 0.3-0.6 spaces per wet berth at the marina and 0.5 spaces per employee. The standard also recommends that additional parking should be provided for activities ancillary to the marina such as shops or restaurants. The standard also notes that for commercial facilities, the lower number of parking spaces should be considered. On this basis, the Proponent has used the lower level of 0.3 spaces per wet berth to calculate that 55 parking spaces are required to meet the Australian Standard and that with 58 spaces the proposal would exceed this requirement.

It is unclear why the Proponent has taken this approach rather than considering parking demand at existing marinas in the region, the recommended approach in both the RTA's guide and the Australian Standard. Nonetheless, the Commission has considered the Proponent's interpretation of the Australian Standard and notes a number of deficiencies in the calculations.

First, the Proponent does not appear to have provided any additional parking provisions for kiosk patrons. The standard also notes that where traffic and parking studies are undertaken, they should consider matters such as:

- Charter vessels;
- Locations of overflow parking, including alternative off street parking and kerbside parking;
- The impact overflow parking may have in relation to other users in the locality, particularly traffic flows and amenity; and
- The possibility and practicality of remote parking (off-site).

Assessment of these additional matters listed for consideration does not appear in the Proponent's traffic assessment.

Of particular concern is the potential impact of overflow parking, particularly given the limited alternative parking available (only kerbside parking on the surrounding streets). Residents have raised concerns that demand for on-street parking will increase as development of the residential area progresses. Residents have also pointed out that, over the years, the Proponent has gained approvals to increase the number of dwellings to be developed in the area, but that on-street parking provisions remain at the original levels. Should the Marina's parking provision prove inadequate, this would increase pressure on the limited number of kerbside spaces available. The Commission also notes that the local road and pedestrian infrastructure within Breakfast Point is maintained by the Community Association (rather than the Council). Consequently, kerbside parking demand generated by the Marina could also impact on maintenance costs, payable by the Community Association.

The Commission notes the proposed parking would only meet the minimum recommendations of one part of the Australian Standard, and that it would not achieve the recommended levels in the RTA's Guide to Traffic Generating Development. The Commission is not satisfied that the 58 parking spaces proposed would adequately accommodate the vehicle parking demand generated by the Marina patrons, for service vehicles, and patrons of the kiosk.

The Commission notes that the submission from Transport NSW recommended that parking provisions should be reduced in order to encourage a reduction in private vehicle use. While this may be appropriate for many developments, the Commission does not consider it

applicable to this development. First, the Commission considers that many people visiting the Marina would be transporting supplies for their boating trips and that transporting these supplies by public transport is unlikely to be feasible. Second, once the Marina car park became full, vehicles would put additional pressure on the kerbside parking in the area, that was intended for use by residents' their visitors (see Section 6.3 below).

6.2.2 Access to the Car Park

There is also uncertainty as to who will have access to the car park. Initially, the parking was to be accessed by swipe card only, meaning that kiosk patrons, service vehicles and visitors to the Marina would not have access to the car park and would have to use the existing street parking. In the Proponent's response to submissions, however, it appears that the gate would be relocated so that some car-parking spaces would be publicly accessible, in order to cater for vehicles associated with the Marina that did not have access to a swipe card. This of course, raises the issue of how the use of these spaces would be controlled and whether they would be adequate in any event.

6.2.3 Logistics of Using the Car Park versus Kerbside Spaces or Driveways

Even if all access restrictions were removed from the car park, the Commission is concerned that it would be difficult to move goods back and forth between the car park and the Marina (see Section 6.3 below). The Commission considers that loading and unloading operations would end up occurring in the driveways of the Hunter Wharf residential development. This is the closest point to the Marina accessible by car. Figure 6.2 shows one of the driveways likely to be used for loading and unloading.

Because of the Community Title arrangements on site, the Commission understands that the Community Association is responsible for all maintenance and management of roads within the precinct. It is not clear how parking restrictions are currently enforced in the precinct and the Commission is concerned that the Community Association may be required to employ rangers to enforce parking restrictions in driveways and the like. It is also possible that, without the benefits of Council's legislative powers, the Community Association may have difficulty effectively enforcing parking restrictions. In turn, this could lead to road and driveway safety hazards and potential liability issues for the Community Association.

Some kerbside spaces are closer to the Marina. By parking on the eastern side of the road, people could also avoid the need to cross the road. In the likely event that Marina users preferentially use the kerbside parking rather than the proposed car park, there will be associated impacts on:

- the availability of parking for residents and their visitors; and
- kerb upkeep and maintenance costs for the Community Association.

Management of trolleys and carts would also become more of an issue as people would be likely to leave them on the kerbside if they were not parked in the car park.

Problems identified with vehicle access and parking appear to be unresolved (and are probably unresolvable). The proposed arrangements are considered by the Commission to be both inadequate in scale and operationally unworkable. There does not appear to be any land available in the vicinity of the site that could be used to expand the proposed car parking facilities and it would be difficult to design a multistorey car park sympathetic to the character of the surrounding residential area. Even if the car park was able to be expanded and was made publicly available, Marina patrons are still expected to use the more

convenient kerbside parking, which in many cases is closer to the Marina and would reduce the number of times patrons had to cross the road while carrying items to their vessels. Management of illegal parking in driveways also has the potential to become an issue, with potential impacts on safety and associated liability issues for the Community Association.

6.3 OPERATIONAL LOGISTICS, GOODS AND WASTE

Carts would be provided for Marina patrons to transport goods between the car park and the Marina berths. Carts would also be used to transport supplies to the kiosk and facilities on the Marina. The Environmental Assessment also discusses the option of using motorised buggies rather than carts and so this option has also been considered.

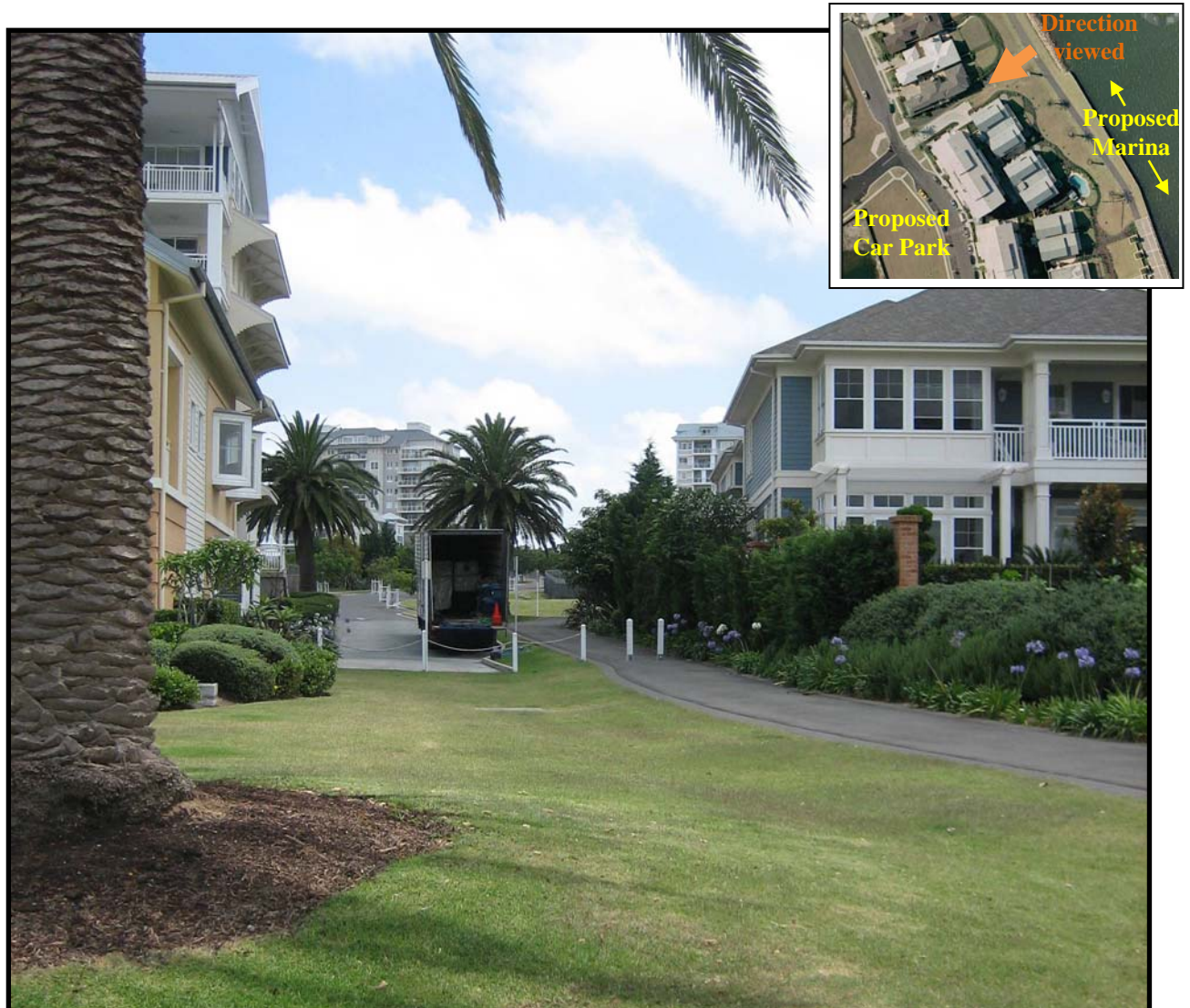


Figure 6.2 Closest vehicle access

As discussed early in this section, it is at least 230 m from the nearest parking space in the car park to the entrance to the Marina, and then up to 300 m more again to get to the furthest vessel. The logistics of carrying supplies and equipment between the car park and the Marina are considered impractical. Even with a cart or motorised buggy, patrons would have to cross 2 roads and navigate between pedestrians, on a sloping footpath, down to the foreshore and then around the Marina.

The use of carts or buggies also has the potential to clutter the foreshore walkway around the Marina, as well as the road near the car park. Carts could also end up falling or being pushed into the water, disturbing the sediments along the sea wall, or damaging the Sediment Protection System.

The use of small motorised vehicles is considered more feasible than the use of handheld carts, however the Commission does not support the use of these vehicles by boat owners or visitors to the Marina. The presence of multiple vehicles travelling up and down the foreshore walkway and to and from the car park would have a number of impacts on people in the area. The vehicles have the potential to become a safety hazard if operated by inexperienced and untrained members and visitors to the Marina. The vehicles could also disrupt and alienate others using the walkway (there is substantial public usage of the walkway, the survey commissioned by Council counted over 600 persons using the walkway on both weekdays and weekends). Finally, the presence of multiple vehicles moving up and down the foreshore would bring additional noise and activity altering the character of the otherwise peaceful walkway, so highly prized in submissions.

Waste would be generated from both the vessels at the Marina and from the kiosk, and would need to be managed. The Proponent has proposed to provide three 660 L bins at the kiosk and an additional four 660 L bins on the gangway at the entrance to the Marina. The bins would be moved the 230 m to the car park for collection 4 to 5 times a week, via the foreshore walkway and footpath between the residential buildings (see Figure 6.2). A contractor would collect the waste from the car park 3 to 4 times a week.

The Proponent has not provided an analysis of the likely quantities of waste that would be generated by the Marina, kiosk and associated infrastructure. Nonetheless, the Commission considers that the proposed bins are unlikely to provide sufficient capacity during peak periods, particularly special events. The Commission has also identified examples of other marinas which provide greater waste storage capacity per berth, although it is acknowledged these bins may be emptied less frequently. While it may be possible to find the space to store an adequate number of bins at the Marina, the Commission is particularly concerned about the logistics of moving this waste to the car park for collection.

Depending on the contents, 660 L bins can weigh 310 kg when full (specifications for 660 L bins indicate they have a useful load of approximately 265 kg and a net weight of approximately 45 kg, i.e. a total weight of ~310 kg (Easyquip (2011), Cox Engineering (2011), Moore Equipment (2011) and Sulo (2009)). The logistics of moving these large heavy bins along the foreshore walkway, up the footpath, across two roads and into the storage area by hand, makes this solution impractical.

Smaller bins (such as the 240 L 'green' or 'yellow' bins supplied to residential properties for recycling and garden waste) may be proposed as a substitute but approximately 19 of the 240 L bins would be required, to reach the same capacity as that proposed. This is still an impractical solution and, with the noise and amenity impacts on adjoining residents (from moving so many bins back and forth between the car park and the Marina, on almost a daily basis), is considered unacceptable.

The day to day logistics of operating a marina that is 230 m from the car park and services, without significant impact on residents, is considered impossible.

The Commission considers that once the Marina began to operate, the logistical issues associated with running the Marina and kiosk would mean that some form of motorised vehicle would end up needing to be used at the facility. The Commission is concerned there would be amenity, safety and storage issues associated with the use of motorised vehicles and that these vehicles may also increase the insurance and liability costs of the Community Association.

6.4 EMERGENCY ACCESS AND HAZARD MANAGEMENT

Residents have also raised concerns about access in the event of an emergency. There are 2 main emergency access concerns:

- Foreshore access for emergency vehicles responding to an emergency such as a fire; and
- Access to the Marina itself for people responding to a smaller scale emergency such as personal injury or small fire.

6.4.1 Emergency Access for Heavy Vehicles

The first issue relates to access for emergency service vehicles that may need to respond to emergencies such as a fire or explosion on the Marina. As shown in Figure 6.2 and Figure 6.3, vehicle access to the foreshore is restricted by a small fence. While it would be possible to ensure the fence is designed to be easily removed, residents have raised concerns that vehicles responding to an emergency would not have time to worry about damaging the property of the Community Association and that emergency vehicles would drive over the barrier, or through the garden bed. Furthermore, submissions expressed concerns about the structural capacity of the sea wall, suggesting that it may not have been designed and constructed to the standard required to support multiple fire engines and associated equipment that would be required to respond to a major incident at the Marina.



Figure 6.3 Alternative vehicle access point

In response to these concerns, the Proponent has confirmed that the seawall is structurally sufficient to withstand the loads arising from emergency vehicles standing on the pavement and also that the pavement is sufficient to support these loads.

Nevertheless, access for emergency vehicles is less than ideal. The Commission understands the proposal has not been referred to NSW Fire and Rescue at this stage, but expects that additional paving along the footpaths and foreshore walkway would likely be required to ensure heavy vehicles could safely access the foreshore. Not only would this impact on the amenity of the foreshore walkway and surrounding gardens and paths, but it could also encourage the use of motorised vehicles in the area.

Whether paving is required or not, heavy vehicles accessing the site would be likely to cause some damage to the foreshore walkway and surrounding gardens and pathways and it appears the Community Association could be burdened with the cost of repairing any damage sustained. Given the Marina's close proximity to residents, submissions also raised concerns about potential hazards for residents in the event of an explosion or fire at the Marina (see Section 11).

6.4.2 Emergency Access for People Responding to an Incident on the Marina

The Proponent has advised that the Marina would be secured so that only the wharf would be publicly accessible. However, boat owners and their visitors may have access to the Marina itself, 24 hours a day, 7 days a week. Staff would only be on site during the day and residents have questioned how incidents would be dealt with during the night when the Marina is not staffed. In particular if a person had an accident or a fire broke out when nobody with a key was available, it is possible that people in the vicinity of the area would be unable to assist as they would be locked out.

In response to these concerns the Proponent has indicated it would be willing to accept restrictions on the operating hours of the Marina. The Commission is not convinced that this would provide a workable long-term solution.

6.5 PUBLIC WHARF

One of the proposed benefits of the project is that there would be a 24 hour access public wharf that could be used by a range of vessels including ferries and charter vessels. The Commission considers that use of this facility by charter vessels is likely to lead to conflict between the residents and wharf users, and expose residents to a range of antisocial behaviours (including noise, litter and trespass). In this context the Commission notes that Marina management would only be on-site during business hours and also that the public facilities are unlikely to be sufficient for use by charter vessel passengers.

6.6 CONCLUSIONS

The Proponent has argued that access and parking issues have in effect been 'preapproved', as the access and car park are consistent with the locations indicated in the 2002 Master Plan and the 2005 Concept Plan. The Commission notes that neither of these plans covered Kendall Bay, the waterside area of the proposed Marina. Although the documents included references to some marina facilities, the size, scale and precise location of the proposed Marina was not accurately reflected in these documents. Further, the 2002 Master Plan indicated a waterfront precinct was proposed to be developed on the site now occupied by the Hunter Wharf residential development fronting the Marina site and the 2005 Concept Plan did not cover this parcel of land. Consequently, any previous consideration of the parking and

access arrangements proposed in those earlier documents is not considered relevant to the current proposal.

Had the proponent retained the commercial waterfront activities precinct proposed in the 2002 Master Plan, access to the site may have been more feasible. However, the Commission considers that by developing the site adjoining the foreshore for residential purposes, the Proponent has constrained the access options, to the point that they would hinder the safe and efficient operations of a marina in Kendall Bay.

The Commission concludes that:

- Lack of direct vehicle access to the Marina would hinder operations, to the extent that illegal parking and/or use of motorised vehicles on pedestrian pathways would be likely to occur.
- Parking provisions are considered inadequate as they are remote from the Marina and they do not include sufficient space for service vehicles and kiosk patrons.
- While a small motorised vehicle (operated by Marina staff only) might be an appropriate solution for transporting goods and waste between the car park and the Marina, the Commission notes this may not be legally allowed. Further the only suitable storage space for such a vehicle would be in the car park, further reducing the already limited parking provisions.
- It is unclear whether emergency access to the Marina is sufficient to meet the requirements of NSW Fire and Rescue. The Commission considers it is likely additional paving would be required and that this would encourage the use of motorised vehicles on the foreshore around the Marina.
- Legal and long-term access to the site is also questionable.
- Options to increase the parking provisions and improve access arrangements appear to be limited to the point that the Commission is unable to find a suitable solution to these issues.
- Due to the limited access and parking, Kendall Bay is not an appropriate location for a commercial marina.

7 POLLUTION AND WASTE ASSOCIATED WITH THE CONSTRUCTION AND OPERATION OF THE PROPOSED MARINA

7.1 WATER QUALITY

Sediment resuspension and solids runoff during construction are potential impacts on water quality addressed by the Proponent. Standard erosion control measures are proposed by the land-side segments of work and a double silt-curtain arrangement with monitoring is proposed for control of sediments resuspended in the water column during construction of the Marina. By adopting an adaptive management approach coupled with intensive monitoring during construction, it should be possible to manage the impact of sediments on water quality acceptably.

Leaching of copper-based antifouling paints from vessels moored at the Marina is recognized as an issue by the Proponent in the EA (TBL Engineers, 2010, Vol 3, Appendix 4, pp vi–vii). The proposed concentration of vessels could lead to impacts on the aquatic ecology in Kendall Bay. The EA states:

As the total copper concentrations within the water column already fall between the ANZECC/ARMCANZ (2000) 90% and 80% [species protection] trigger values, it is recommended that appropriate measures be incorporated into the environmental management plan for the marina to reduce the possibility of greater harm to biota arising. (TBL Engineers, 2010, Vol 3, p vi)

Education of boat owners discouraging the use of copper-based paints and *in situ* cleaning of hulls so treated is the proposed management approach. Given that this is unlikely to be effective, close monitoring and an adaptive management approach would be essential in this already stressed benthic environment.

Strict management would be needed to ensure there were no illegal discharges of sewage and bilge water, other than to the pump-out facilities proposed, and that spillage of fuel and oil was minimised. Provisions for containment and clean up of any spills at the Marina are proposed in the management plan. Whether this can be satisfactorily sustained throughout the proposed life of the Marina with no continual on-site management seems uncertain to the Commission.

7.2 NOISE

The Proponent has assessed potential noise impacts for both the construction and operational phases. The background noise environment was established by continuous monitoring for a week in May 2009 at one site on Breakfast Point and two sites on the northern bank of the River at Gladesville and Putney. Impacts from project noise sources were then modelled at sensitive receptors taking account of weather, topography and time of day.

Not surprisingly, the impact piling proposed for the construction of the Marina tends to dominate construction noise. The construction period involving piling is scheduled to extend over approximately one year, with the more than 160 piles required being driven at a rate of 2 piles per day, i.e. more than 80 days of piling during the period. The modelled noise levels for Breakfast Point are predicted to exceed the noise criteria by up to 33 dBA (TBL Engineers, 2010, Vol 4, Appendix 5, p 22, Table 16). The DECCW policy for construction noise requires that when the criteria are predicted to be exceeded best practice should be

adopted to minimise noise impacts. The Proponent's response is to adopt the following strategies:

- *Conducting sheet piling only after 8.00 am, and include respite periods.*
- *Regular compliance checks on the noise emissions of all plant and machinery used for the project would indicate whether noise emissions from plant items were higher than normal.*
- *Ongoing noise monitoring during construction at sensitive receivers during critical periods (ie times when noise emissions are expected to be at their highest – e.g. piling) will assist in identifying and controlling high risk noise events. (TBL Engineers, 2010, Vol 4, Appendix 5, p 23.)*

This does not adequately address the problem for such large exceedences of the noise criteria (up to 33 dBA at Breakfast Point and 27 dBA at Tennyson Point). The Proponent indicated orally to the Commission that screw piling was a possible alternative strategy. Were the project to be approved, the Commission considers the Proponent should be required to demonstrate what improvement in noise impacts could be achieved by adopting this method of piling, with a view to adopting it if the environmental benefit of noise reduction can be demonstrated to be achievable consistent with minimal sediment disturbance.

The Proponent's operational noise assessment indicated general compliance with criteria for impacts of the Marina operations and associated traffic. However, sleep disturbance is predicted to be likely at Breakfast Point due to the use of bow thrusters close to the shore and people shouting close to the Marina. The Proponent's consultant advises:

- *It is recommended the Marina noise management plan address the potential issue of patrons shouting during the 10 pm to 7 am night-time period.*
- *The location of vessels with bow thrusters at the outer marina arms will reduce the potential to exceed the sleep disturbance criteria at the surrounding residences. It is recommended that Marina users are not to operate "bow-thrusters" during the 10 pm to 7 am night-time period, except in emergency. However, the likelihood of their frequent use beyond 10 pm is probably small.*

Modern marinas in urban areas tend to be used for 'partying', either on moored vessels or on vessels returning to moorings late at night. The Commission considers the issue of "patrons shouting during the 10 pm to 7 am period" to be a significant impact. The terms used are a euphemism for a range of unsociable behaviour which is likely to impact on Breakfast Point residents as Marina patrons party (without Marina management approval) on board vessels or move back to their vehicles between the residential buildings after partying. The Proponent's response in its Statements of Commitments (TBL Engineers, 2010, Vol 1, p 115; Vol 7, Appendix 10, p 12-13; and Vol 10, Appendix 15, p 4) is not considered adequate to address this issue, given that there will be no continuous on-site management presence. The inclusion of the following 'rules' for marina operation, are little more than pious hopes, without a realistic means of enforcement:

The following activities are not permitted on vessels mooring in the Marina:

- 1. No loud music.*
- 2. No drinking on vessels.*
- 3. No overnight stays on vessels.*
- 4. No parties on vessels. (TBL Engineers, 2010, Vol 10, Appendix 15, p 4)*

7.3 AIR QUALITY

The Proponent has claimed “there will be no activities during the construction or operation of the development which will affect the existing air quality.” (TBL Engineers, 2010, Vol 1 p 99)

While the Commission does not accept this generalised dismissal of impact on air quality, it accepts that any impacts will be minor in nature. Since no refuelling or maintenance facilities are proposed for the Marina, evaporative emissions of volatile organic compounds from fuel transfer and storage and from maintenance will be minimal.

There will be an increase in emissions of volatile organic compounds and nitrogen oxides from the operation of engines on vessels using the Marina and from vehicles parking in connection with marina usage. These will contribute to photochemical pollution (ozone formation) when atmospheric conditions are suitable in summer. However, the impact on air quality in the Sydney metropolitan air basin, the appropriate scale for assessment, will be slight. Assuming, if the proposal were not to proceed, that any demand for marina berths would be taken up at other locations in the inner Harbour, the significance of transferring emissions from the Kendall Bay site to other relatively proximate sites would be so small as to be indistinguishable by any monitoring or modelling.

Any odours arising from engine operation or waste handling will be localized and would be managed by normal exercise of good practice. Any dust and particulate emissions during construction would be managed by the use of good practice.

No odours are expected to be generated as a result of disturbance of sediments, since it is not anticipated that disturbed sediments will be exposed directly to air. Minor amounts of odorous sediments might be briefly exposed when the temporary piles were extracted, if screw piling was used, but this would not be expected to have any significant impact.

7.4 WASTE

The Proponent has indicated methods of management of wastes generated at the Marina by patrons and commercial operations. Liquid wastes will generally be disposed of to the Sydney Water sewer under an agreement with Sydney Water or to licensed contractors. The amounts collected may be underestimated in the EA (from marina operations 57 L per year and from vessels 3,500 L per year) (TBL Engineers, 2010, Vol 1, p 100), but it should be possible to accommodate an increased amount by the methods proposed. Solid wastes will be collected and held in bins for collection by appropriately licensed waste contractors. Collection of litter will be undertaken regularly by the Marina management. Much depends on the effectiveness of the Marina management and operation.

The main issue appears to be access to the stored waste for collection by the waste contractors. Foreshore access is not feasible and the waste bins will need to be moved to the parking area for heavy vehicle access. This presents an access problem for the residential precinct of Breakfast Point, as discussed above in Section 6. The statements by the Proponent on management do not indicate any substantial planning of this logistical aspect, which presents as a significant problem given the relatively remote shore access to the Marina:

Waste management strategies that will be utilised are:

- *Waste bins for domestic waste and recyclable waste will be readily available. Other waste bins may be included for disposal of hazardous substances, fish waste, waste oil, oily mixture, scrap metal and wastewater (including bilge water);*
- *Solid waste bins (domestic waste and recyclable waste) will be placed at the street entrance to the property for pick-up on a weekly basis; and*
- *Return empty containers to suppliers, where possible. (TBL Engineers, 2010, Vol 7, Appendix 10, p 12)*

and

- *Clearly identifiable garbage disposal bins will be provided in the precincts of the Marina and the buildings on the jetty.*
- *A garbage collection service will be provided by a licensed garbage contractor for the regular removal of the content of the garbage bins.*
- *Bins will be moved by Marina personnel to the car park area for garbage collection.*
- *All bins will be closed in position.*
- *On a daily basis staff will collect all visible garbage or other materials discharged or blown into the Marina waters and dispose of such in the appropriate receptacles.*
- *Cleaning of fish within the Marina or on the Marina walkways and berth fingers will not be in accordance with the Regulations for Marina Usage. (TBL Engineers, 2010, Vol 10, Appendix 15, p 9)*

7.5 CONCLUSIONS

- Screw piling would need to be investigated and adopted instead of impact piling if the environmental benefit of noise reduction can be demonstrated to be achievable consistent with minimal sediment disturbance.
- Were the project to be approved, adaptive management would be essential during the construction phase to ensure escape of contaminants from the sediment was minimised. This would involve regular monitoring and appropriate adjustment of construction techniques.
- The Proponent has presented inadequate evidence that the Marina can be managed so as to ensure:
 - (a) proper disposal of liquid and solid wastes at all times; and
 - (b) management of operational noise to adequately minimise impacts on Breakfast Point residents at all times.
- The Proponent has not demonstrated an adequate level of planning for the management and removal of solid waste from the Marina, given the separation of the Marina from the accessible land areas.
- The leaching of copper from marine antifouling paints on vessels berthed at the proposed Marina needs further consideration.

8 VISUAL IMPACT

The proposed Marina would be located in Kendall Bay which, although previously occupied by the Hunter Wharf, is now an open bay, free of nautical infrastructure or vessel moorings (aside from a single marker buoy). Kendall Bay is one of the few unoccupied bays in Sydney Harbour.

The Bay is surrounded by:

- a public foreshore walkway that is continuous around the entire shoreline;
- Cabarita Park and Ferry Wharf on the eastern side of the Bay; and
- the Breakfast Point residential area (which is a mixture of completed and occupied residences and ongoing development) on the western and southern sides of the Bay.

While a sea wall has been constructed on the western side of the Bay, the Bay has a relatively natural character, with a small beach and mangrove stand occupying the southern end and natural rock outcrops along the eastern foreshore connecting to Cabarita Park. Evidence of the contamination in the Bay and relics of the wharf are visible during low tide, when black particulates and debris become exposed around the inner end of the Bay and around the area formerly occupied by the wharf. Nonetheless, the debris does not significantly affect the Bay's natural ambience and the presence and impact of the debris would be reduced should Jemena undertake its proposed remediation works. (As discussed in Section 5, Jemena has an agreement with DECCW to remediate some specific areas of the Bay, but the final details are yet to be established and are themselves subject to the planning process).

As part of its assessment of the visual impacts of the proposal, the Commission considered the criteria in the *Sydney Harbour Foreshores and Waterways Areas Development Control Plan for Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (the Sydney Harbour DCP), the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (the Sydney Harbour REP) and the principles established in legal proceedings for assessing the visual impact of marinas and impacts on view sharing.

8.1 CHARACTER OF THE VIEWS TO BE AFFECTED

In his judgement of *Addenbrooke Pty Ltd v Woollahra Municipal Council* [2008] NSWLEC 190, relating to a development application for a marina expansion at Rose Bay, Justice Biscoe specified that it is necessary to establish what views will be affected.

The Commission notes that the Marina would be visible from a number of vantage points around the harbour, on both sides of the Parramatta River. The Marina would be most obvious from areas around the foreshore of Kendall Bay, but would also be visible from some vantage points on the northern side of the river, particularly from the suburbs of Tennyson Point and Gladesville.

In considering views from the northern side of the river, the Commission notes that the Marina would generally form part of the middle distance view and that these views would be more strongly influenced by existing foreground infrastructure and activities, such as swing moorings and river traffic. However, for some areas on the northern side, the impact could be significant, particularly for elevated vantage points (e.g. see Figure 8.1). The Commission has focused on those areas thought to be most heavily impacted, i.e. those vantage points in and around Kendall Bay on the southern side of the Parramatta River. Nonetheless, the Commission recognises the Marina would be visible from other vantage points around the harbour and has also considered views from Putney Park.



Figure 8.1 View from Tennyson Point

The view catchments and associated impacts vary depending on the vantage point. Consequently the Commission has selected 5 vantage points to characterise the range of views to be affected by the Marina (see Figure 8.2). Four foreshore walkway vantage points have been selected because the shape of the walkway means that the view catchment changes as walkers move around the Bay. (These vantage points have also been used to consider potential impacts on nearby residents and other affected views; such as from visitors to Cabarita Park).

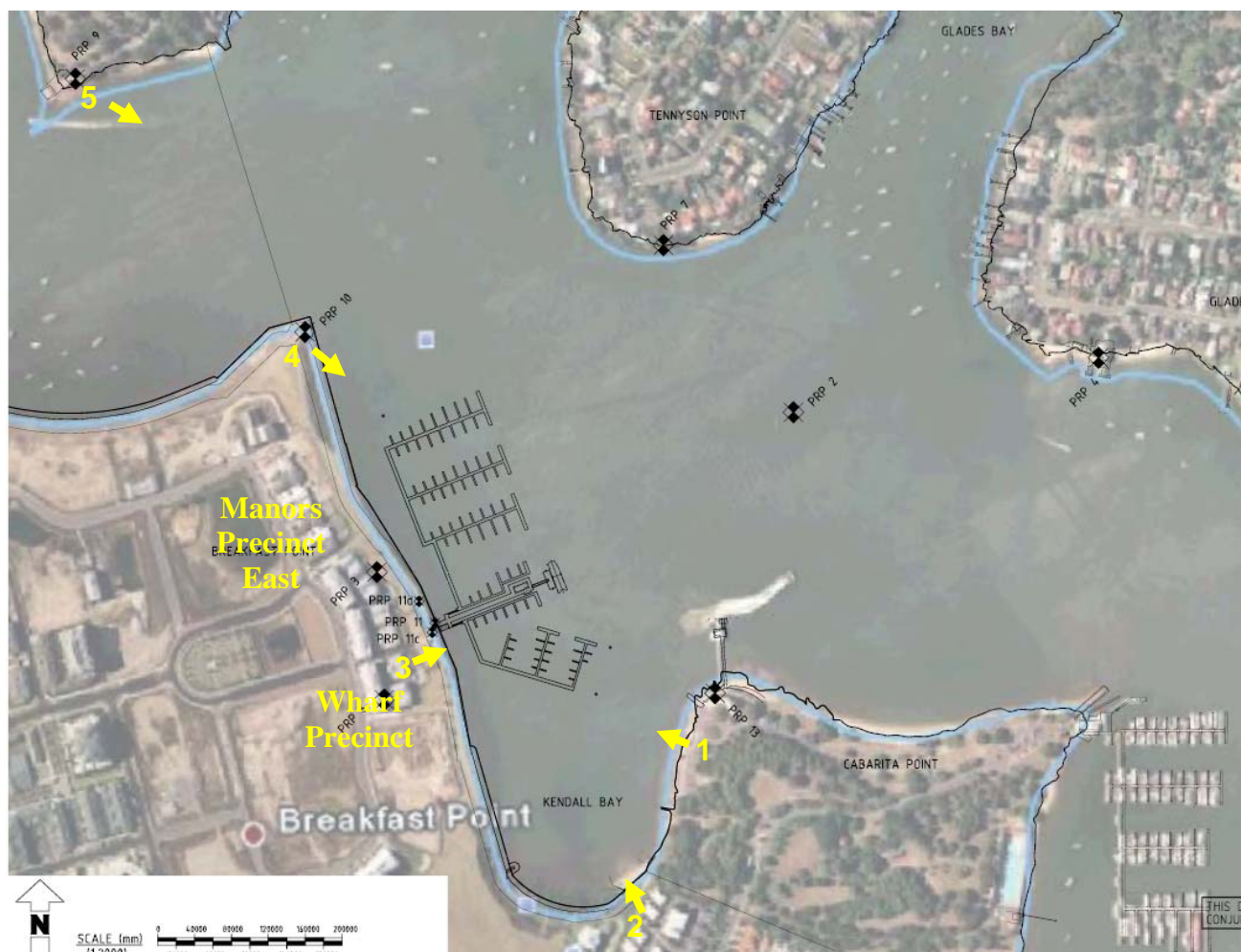


Figure 8.2 Vantage Points considered around Kendall Bay (shown in yellow)

The first vantage point is on the eastern side of Kendall Bay on the foreshore walkway and adjoining Cabarita Park. Views from this side of the Bay are characterised by the substantial residential developments at Breakfast Point on the opposite side of the Bay, as well as views down the Bay to the mangroves and beach, and views across the Parramatta River to the northern shoreline (see Figure 8.3).



Figure 8.3 Existing view from Vantage Point 1

Moving clockwise around the Bay, the views from Vantage Point 2 at the inner end of Kendall Bay, from both the foreshore and the residences in Kendall Inlet, encompass almost the entire Bay including the Breakfast Point developments, the open bay, the natural foreshore around Putney Park on the northern side of the Parramatta River (including the entrance to Morrisons Bay), and the residential areas of Putney and Tennyson Point (see Figure 8.4).



Figure 8.4 Existing view from Vantage Point 2

Views from Vantage Point 3 (the former Hunters Wharf site) are characterised by the natural rocky shoreline on the eastern side of Kendall Bay, along with Cabarita Park, the Cabarita Ferry Wharf, views down and across the river to Glades Bay and the residential areas of Tennyson Point and Gladesville. These views are similar from the walkway and the lower levels of the residences in the Hunters Wharf Precinct (see Figure 8.5).



Figure 8.5 Existing view from Vantage Point 3

Views from Vantage Point 4 (the knoll at the tip of Breakfast Point, when facing south east towards Kendall Bay) include almost the entire Bay and much of the foreshore walkway. Key elements include the expanse of open water and the backdrop of the natural shoreline and vegetation in and around Cabarita Park (see Figure 8.6).



Figure 8.6 Existing view from Vantage Point 4

Finally the views from Vantage Point 5 (Putney Park) encompass the heritage buildings/remains from the former gasworks, the open water and entrance to Kendall Bay, Cabarita Park and Wharf (which define the background and skyline) and distant views of the Cabarita Marina to the east of Kendall Bay (see Figure 8.7).



Figure 8.7 Existing view from Vantage Point 5 (sourced from the Proponent's Environmental Assessment)

8.2 ASSESSMENT OF IMPACTS

The Commission made use of both a view analysis matrix and the view sharing planning principles in assessing the visual impacts of the proposal.

8.2.1 View Analysis Matrix

The view analysis matrix in the Sydney Harbour DCP sets out a number of factors to be considered when assessing the potential visual impact of a marina, these are:

- Location of viewer (high impacts for those adjoining the shoreline and lower impacts at elevated positions);
- Distance of view (high impacts for those less than 100 m from the Marina);
- Period of view (high impacts on adjoining residents which could be impacted for the majority of the day);
- Scale or relative size (high impacts from vessels 30 m or longer and low impacts from vessels up to 10 m long); and
- Spatial relationships (high in a narrow enclosed bay, lower for swing moorings and open areas).

The Commission used the matrix to identify the potential visual impact at each vantage point. To do this, each of the factors was considered individually at each of the 5 vantage points. Scores were then averaged in order to determine the overall potential visual impact at each site.

The first factor considered is the location of the viewer. As residential buildings (in the Hunters Wharf and Manors Precincts) and pedestrians using the foreshore walkway would either be adjoining or closely adjacent to the proposed Marina site, these views are expected to be blocked by the Marina and the impact would be high. The slightly elevated views from Kendall Inlet, Cabarita Park and Putney Park would include partial views of the Marina and so were assessed as a medium impact.

The second factor (distance of the view) was approximated using the measure distance function in the Spatial Information Exchange (SIX) program, publicly available from the Land and Property Management Authority. Obviously views from the foreshore walkway would be closest as pedestrians pass the entrance to the Marina, while the residents at Kendall Inlet would have more distant views being approximately 200 m from the Marina.

For the third factor (the viewing period), the Marina would permanently alter views from residences overlooking Kendall Bay. Views for people using the foreshore walkway and Cabarita Park would be affected most of the time, although from some areas trees already block views of this part of Kendall Bay.

For the fourth factor (scale and relative size), all vessels would be less than 30 m long (a maximum of 25 m long). Nonetheless the Marina would have a large number of berths (172) and would occupy a large proportion of the Bay, being approximately half the width of the Bay and some 380 m in length. Consequently, the Commission considers the Marina's size and relative scale would have a high impact on views from all five viewpoints considered.

For the fifth factor (spatial relationships), the Commission notes that the proposed Marina is a commercial facility and must have a substantial level of occupancy to remain viable. It would therefore have a significantly higher impact on views of the Bay than other types of boat storage, such as swing moorings.

As shown in Table 8.1 the overall potential impact was assessed to be high for residents of the Wharf and Manors Precincts, and for pedestrians using the foreshore walkway. The impacts from the Kendall Inlet residences, Cabarita Park and Putney were found to be less severe, but nonetheless significant, with medium to high impacts. The Commission notes that the visual impact assessment in the Environmental Assessment (TBL Engineers, 2010, Vol 5) adopted a modified version of the matrix in the DCP, and this also identified a trend of high impacts for close range viewing locations.

Table 8.1 Sydney Harbour Foreshore and Waterways Area DCP - View Analysis Matrix (degree of impact – High = 3, Medium = 2, Low = 1)

	View 1	View 2	View 3	View 4	View 5
View Situation	Cabarita Park and Foreshore Walkway (eastern side of Bay)	Kendall Inlet residential area and Foreshore Walkway (inner Bay)	Breakfast Point residential area and Foreshore Walkway (western side of Bay)	Breakfast Point Knoll - Foreshore Walkway	Putney Park (northern side of River)
Location of viewer	Adjacent and slightly elevated from the site	Slightly elevated, views around and over the top of the mangroves	Adjoining with some residences elevated from the site	Slightly elevated	Slightly elevated from the site
Score	2	2	3	3	2
Distance of view	~150 m	~200 m	~30 – 50 m	~ 150 m	~500 m
Score	2	2	3	2	2
Period of view	For most of the duration of walk / recreation	Permanent change of view for residents	Permanent change of view for residents	For most of the duration of walk / recreation	For most of the duration of walk / recreation
Score	2	R = 3 W = 2	R = 3 W = 2	2	2
Scale or relative size (number and mix of vessel types)	172 vessels of medium to large size A mix of vessel types 8 – 25 m long (While vessels would all be less than 30 m in length, the number of vessels would give the Marina a considerable scale, creating a high impact)				
Score	3	3	3	3	3
Boat storage type and spatial relationship	Intensive commercial marina Small bay with a relatively natural setting				Commercial marina Blocks views of entrance to bay
Score	3	3	3	3	2
Overall potential visual impact	Medium to High	Medium to High	High	Medium to High	Medium
Average score	2.4	R = 2.6 W = 2.4	R = 3 W = 2.8	2.6	2.2

Notes: Scores have been assigned in accordance with the Sydney Harbour DCP matrix, high = 3, medium = 2 and low = 1. Where impacts were found to differ for residents compared to walkers, separate scores have been assigned - R = Residence and W = walkway.



Figure 8.8 Photomontages from the Proponent's Environmental Assessment from view points 1, 3, 4 and 5 (TBL Engineers, 2010, Vol 5)

8.2.2 View Sharing Principles

In *Tenacity Consulting v Waringah* [2004] NSWLEC 140 Senior Commissioner Roseth established planning principles for assessing the reasonableness of view sharing. The principles include a four-step approach.

The first step is to assess the views to be affected. Views of water and/or iconic views are noted to be highly valued, in particular “*a water view in which the interface between land and water is visible is more valuable than one in which it is obscured*”. The Commission notes that all the vantage points selected have views of the interface between land and water, often on both sides of the Bay. Many of these views are currently unhindered by buildings or infrastructure, allowing the whole of the water’s edge to be viewed.

The second step relates to impacts on specific properties and the need to consider where the views are obtained from, noting that the expectation to retain side views and sitting views are often unrealistic. In this case, the views considered are primarily direct views, rather than side views. The residential buildings have been constructed to face the Bay, so the Marina would be in the direct line of sight for many residents. The Commission considered that visiting residences to determine whether impacts would affect sitting or standing views was not necessary in this case. The Commission’s inspection of the foreshore walkway gave a sound basis on which to assess whether ground floor views from residences would be impacted and the submissions from residents make it clear that impacts to both sitting and standing views will occur. The Commission also notes that both sitting and standing views would be affected along the foreshore walkway and in Cabarita Park.

The third step is to assess the extent of the impact. The proposed Marina would not permanently and completely block a view in the way that a building might, however the vessels and infrastructure, such as the office and kiosk buildings, would cause significant impacts to the views for residents on the lower levels of buildings in the Hunters Wharf and Manors Precincts. The Marina would obscure views of the interface between land and water for these residents as well as the residents at Kendall Inlet. View loss for residents would vary, depending on their location around the Bay, however it is expected that some residents would experience moderate to severe levels of view loss. For users of the foreshore, losses would also vary with location. However, for the substantial areas of walkway in the vicinity of the proposed Marina, the impacts would be severe.

Having determined that the proposal would have impacts on a range of vistas, with high or severe impacts on some of these views, the final step is to assess the reasonableness of the proposal causing the impact. In considering the reasonableness of the proposal, the planning principles note that a proposal that complied with the planning controls would be considered more reasonable than one that breached them. The reasonableness of the proposal is considered in Section 8.3 below.

8.3 ACCEPTABILITY OF THE VISUAL IMPACT

Both the Sydney Harbour REP and the Sydney Harbour DCP include specific provisions relating to visual impacts, views and scenic quality. Although it is arguable whether the Commission is required to consider the proposal in terms of these controls, the relevant sections of these documents provide guidance as to factors that should be considered in any review of the environmental impacts of such as proposal.

8.3.1 Sydney Harbour REP

The Sydney Harbour REP sets out a number of matters for consideration in relation to foreshore and waterways scenic quality, and the maintenance, protection and enhancement of views. The Commission notes the matters listed for consideration are specifically for consent authorities and public authorities considering development or activities under Part 4 or Part 5 of the Act respectively. Nonetheless, the matters provide a useful framework for considering the reasonableness of the visual impacts identified. Clause 25 provides:

25 Foreshore and waterways scenic quality

The matters to be taken into consideration in relation to the maintenance, protection and enhancement of the scenic quality of foreshores and waterways are as follows:

- (a) the scale, form, design and siting of any building should be based on an analysis of:*
 - (i) the land on which it is to be erected, and*
 - (ii) the adjoining land, and*
 - (iii) the likely future character of the locality,*
- (b) development should maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands, foreshores and tributaries,*
- (c) the cumulative impact of water-based development should not detract from the character of the waterways and adjoining foreshores.*

Development of a 172-berth marina would be a significant change that would substantially alter the character of the Bay. In this context, Kendall Bay is one of only a few bays not occupied by boat storage infrastructure such as swing moorings and marinas. Given that maintenance of some undeveloped or open bays is necessary to protect and enhance the full range of unique visual qualities of Sydney Harbour, any proposal to develop such a bay requires very careful consideration. On balance, it is difficult to see how the proposed development is consistent with either (b) or (c) of Clause 25.

Clause 26 of the Sydney Harbour REP provides:

26 Maintenance, Protection and enhancement of views

The matters to be taken into consideration in relation to the maintenance, protection and enhancement of views are as follows:

- (a) development should maintain, protect and enhance views (including night views) to and from Sydney Harbour,*
- (b) development should minimise any adverse impacts on views and vistas to and from public places, landmarks and heritage items,*
- (c) the cumulative impact of development on views should be minimised.*

On the basis of the assessment provided in Section 8.2 above, the proposed Marina would have adverse impacts on views and vistas to and from public places including all 5 vantage points in Figure 8.2. It is difficult to reconcile the proposal with Clause 26.



Figure 8.9 Photomontage (view from Putney towards Cabarita Park) from the Proponent's Environmental Assessment

8.3.2 Sydney Harbour DCP

Part 4 of the Sydney Harbour DCP provides design guidelines for water-based and land/water interface developments. Clause 4.7 specifically relates to marinas (both commercial and private). In relation to visual impacts, this section specifies:

- *the visual impact of the Marina on people in the visual catchment (derived from an analysis of the potential number of viewers, their location within the landscape, distance from the Marina, and duration of view) is to be minimised;*
- *waterside structures and berthed vessels associated with marinas are not to block views from foreshore public open space or views to foreshore public open space from the waterway;*

The Commission notes that being in a relatively small bay, it would be difficult to minimise the visual impact of the Marina on people in the visual catchment, because the Marina can be viewed from all sides. The Commission also notes that it would be practically impossible to avoid blocking views from substantial portions of the foreshore public open space.

Part 3 of the Sydney Harbour DCP sets out performance criteria to protect and enhance the various landscape characters identified in and around Sydney Harbour. A number of landscape character types are defined and the Commission considers Kendall Bay could fall into two of these character types, or could comprise two different character types on either side of the Bay.

Landscape Character Type 9 applies to the natural foreshores of the Parramatta River and it is possible that the natural rocky foreshores along the eastern side of the Bay could be characterised as Type 9. The performance criteria for development in this character type include that:

- *it is sited to ensure that the continuous line of any natural feature is preserved and remains the dominant feature in the landscape; and*
- *major points and entrances to the bay are preserved in their natural state.*

The rocky foreshore along the eastern side of the Bay is currently a dominant feature in the Bay. However, the Commission considers the Marina has the potential to change this by reducing the influence of natural features and increasing dominance of the built-form elements.

Given the range of development in and around Kendall Bay, Landscape Character Type 12 may be more appropriate for characterising the Bay. Landscape Character Type 12 applies to the distinctive bays of the Parramatta River including Hen and Chicken Bay and part of Canada Bay. In these areas the shoreline is mainly built up, often with a sea wall, but pockets of natural shoreline do occur. The intent for development within this landscape is to provide for appropriate recreational and similar uses of the foreshore, to rehabilitate or improve degraded foreshores and to protect valuable natural shorelines. Performance criteria for development in this landscape include that:

- *it is sited so that natural features are protected and views of these features maintained; and*
- *pockets of natural shoreline are retained.*

While the proposed Marina would not directly affect the natural shorelines around Kendall Bay, it would significantly impact on views of these natural features and also would detract from the natural character of the Bay. Consequently whether Kendall Bay is categorised as Landscape Character Type 9 or Type 12, the proposal does not appear to satisfy the performance criteria in the Sydney Harbour DCP.

Further, Clause 4.2 of the Sydney Harbour DCP provides that “development does not dominate its landscape setting”. Given the size and scale of the proposed Marina and the change of character this would produce, it is difficult to see how the proposal could be consistent with this part of the Sydney Harbour DCP.

Given the high visual impacts identified, the Commission considers the visual impacts of the project to be unacceptable.

8.4 CONCLUSIONS

The Commission concludes that:

- The proposed Marina would be visible from most sites around Kendall Bay.
- A range of sensitive receivers would be affected by the proposal, particularly residents living around the foreshore and people using the Bay and foreshore for recreational purposes.
- The proposal would have high or severe impacts on views from some vantage points around Kendall Bay, including public places and residences.
- The proposal is inconsistent with some provisions of the Sydney Harbour REP and Sydney Harbour DCP.
- The extent and severity of visual impacts on both private residents and the many users of the extensive public areas in the vicinity of the proposed Marina are considered unacceptable.

9 NAVIGATION AND SAFETY

The proposed Marina lease area lies mostly within Kendall Bay. However, the north-east corner extends substantially beyond the line between Breakfast Point and the Cabarita Public Ferry Wharf toward the main Parramatta River navigation channel (see Figure 2.2, on page 3). NSW Maritime advises that this north-east corner extends to within 140 m of the centre of this channel (NSW Maritime, 2010b) and that this section of the River is used heavily by recreational and commercial vessels. They conclude that the increased congestion caused by changed vessel pathways would increase the risk of vessel conflict and that there would be an adverse impact on navigational safety.

The Proponent's position is that there are other sections of the River with narrow channel widths and that adherence to the navigational rules would be sufficient to manage the situation in the vicinity of the proposed Marina.

Sydney Ferries opposes the proposed Marina outright on a number of grounds. One of these is the encroachment of the Marina onto the pathways used by ferries to enter and leave Cabarita Ferry Wharf. The Proponent noted that an altered path would be necessary, but contended:

- that this was required in any event to comply with NSW Maritime requirements contained in a document titled 'Traffic Coordination on the Parramatta River' (a proposition rejected by Sydney Ferries as both 'wrong and offensive' in a letter to the Department (Sydney Ferries, 2010)); and
- that any required deviation would add an insignificant amount of time to each journey (a proposition also rejected by Sydney Ferries who provided a different assessment of impact resulting in 53 minutes lost time per day and the loss of 1-2 services each day (Sydney Ferries, 2010)).

At an interview with Sydney Ferries, the Commission queried why there was no comment on potential safety risks posed by the Marina operations. The answer was that the Ferry Masters would deal appropriately with whatever situations they were presented with and that it was therefore not in the public interest to argue that the Marina operations could jeopardise public safety.

The issue of vessels having to cross ferry pathways to enter and exit the Marina was also raised at the Public Hearings. The Proponent's response (Breakfast Point, 2011 Section 4.6.4) simply states that there are many other places where vessels cross ferry pathways and that there is adequate space to meet the requirements of the Navigation Safety Act [*Sic*].

Whilst the Commission appreciates the reason for the lack of comment from Sydney Ferries on this issue, the simple fact is that it is proposed that large fast ferries are to be put in very close proximity to other large vessels that may not be under the command of experienced controllers. On any reasonable assessment this must amount to an increased risk.

In the Commission's view, it is not sufficient for the Proponent to rely on the fact that other areas of Sydney Harbour pose risk and that strict adherence to the Navigation Safety Rules would manage such a risk. The simple fact is that boat operators do not always operate in accordance with the rules and marina patrons are not necessarily vastly experienced controllers of large vessels. The question is whether there is some public interest or benefit that would make an increased level of risk acceptable and whether there are specific measures

available to mitigate or manage the risk to a level consistent with that level of acceptability. As indicated elsewhere in this Report, the Commission is of the view that the proposal demonstrates little, if any, public benefit and there is therefore no merit in accepting any increase in risk to existing public use of the Bay or adjacent waters.

There were objections to the Marina proposal from schools and rowing clubs on multiple grounds including encroachment of the Marina into the main channel area, risks to rowers from increased large vessel traffic, and the loss of Kendall Bay itself as a rest area. The Proponent's response to these submissions (Breakfast Point, 2011, Section 4.16.2) was to argue that there were other narrow sections of the river and the encroachment was therefore not significant, that traffic conflict would be minimal given the generally different daily use patterns of rowing clubs and marina patrons, and that the rowers could find other rest areas such as Morrison Bay and Glades Bay.

The Commission is not in a position to reconcile these competing views on usage by direct observation. However, the weight of the evidence presented clearly favours a conclusion that the Marina, as proposed, would be in direct conflict with current public recreational use of Kendall Bay and adjacent waterways that the Marina operations would increase the risk to the existing users.

The possibility of delay in ferry operations due to the Marina requires further mention. The Commission considered carefully the submissions of Sydney Ferries and NSW Maritime and the Proponent's response to those submissions. The issue was also raised at the Public Hearings. In addition, the Commission sought meetings with both Sydney Ferries and NSW Maritime and requested further detailed information from Sydney Ferries on patronage. The Commission also observed ferries using Cabarita Wharf on a number of occasions.

The Commission was also advised of significant concerns by Sydney Ferries based on experience that the proximity of the proposed Marina to the path taken by Ferries using the Cabarita Wharf would lead to legal claims by boat owners for wave damage to vessels or infrastructure.

The Commission's conclusions are that:

- current ferry operations would need to be changed to avoid collision with the proposed marina infrastructure;
- ferries would still pass close to the proposed Marina even on an altered path;
- Sydney Ferries' concerns about liability claims arising from damage to vessels berthed at the Marina are real and should be given careful consideration; and
- the impact of the Marina on ferry operations would cause a reduction in ferry services based on the size of the current fleet and that any such reduction would not be in the public interest.

10 DEMAND FOR MARINA BERTHS IN KENDALL BAY

A key justification for the proposal in the Environmental Assessment is that “it responds to the high demand for on-water storage of vessels in Sydney Harbour, particularly west of the Sydney Harbour Bridge” (TBL Engineers, 2010, Vol 1, p 23). Clause 4.2 of the Sydney Harbour DCP also specifies requirements that demand for a development is established. Clause 4.7 provides that “commercial marinas are to provide a mix and choice of boat storage facilities based on established demand as well as a range of marine services to the boating public”.

10.1 CURRENT DEMAND

The Proponent’s Environmental Assessment included a Marina Berth Demand Assessment, prepared by Australian Marina Management Pty Ltd (TBL Engineers, 2010, Vol 8). The Commission has considered the findings of this assessment as well as information provided by the Department of Planning, information available on NSW Maritime’s website and interviews with NSW Maritime as part of the review.

10.1.1 Findings of the Proponent’s Marina Berth Demand Assessment

This assessment found that of the 12 commercial marinas operating west of the Sydney Harbour Bridge in 2009, there was an average occupancy rate of 94%, with 3 marinas being full (i.e. 100% occupied). In total, 550 of the 584 berths available were occupied. Commercial boat sheds and charter vessel berthing options west of the Harbour Bridge were also found to have high occupancy rates of 83% and 93% respectively.

The demand assessment used the number of applications on waiting lists for private moorings as an estimate of the region’s unsatisfied demand for boat storage. On page 7, the report indicates that in 2009 there were 183 applicants on waiting lists for private moorings on the southern side of the harbour, west of the Sydney Harbour Bridge (TBL Engineers, 2010, Vol 8). However, the accuracy of this figure is unclear, as on page 12 of the report, Table G indicates that the waiting list had 193 applicants for private moorings for this same area (on the southern side of the harbour, west of the Sydney Harbour Bridge) in 2009 (TBL Engineers, 2010, Vol 8.).

For the purposes of this analysis, the Commission has adopted the higher figure (193), as a worst case scenario. The report argues that this figure means that there is demand for storage of an additional 193 vessels in the region and concludes that the proposed Marina would be well placed to cater to this unsatisfied demand.

10.1.2 Demand Variability around the Harbour

The Commission notes that Kendall Bay is almost 10 km from the Sydney Harbour Bridge, or 20 km from the Heads and the open ocean. While it is possible that some boats berthed at the Marina would be used for short trips along the river, the Commission understands that most boats of the size to be berthed at the proposed Marina would be used east of the Sydney Harbour Bridge. The Commission expects that, because Kendall Bay is distant from key boating destinations, only some of those on waiting lists would consider taking a berth at the proposed Marina.

The Proponent’s demand analysis has not considered the variation in waiting-list figures between mooring sites west of the Harbour Bridge. The Commission has reviewed the waiting-list figures available on the NSW Maritime website and notes that despite having a

similar number of moorings, there are significantly more applications for moorings in Area D (where most moorings are further east, closer to the Harbour Bridge) than Area F (where moorings are further west) (see Figure 10.1).

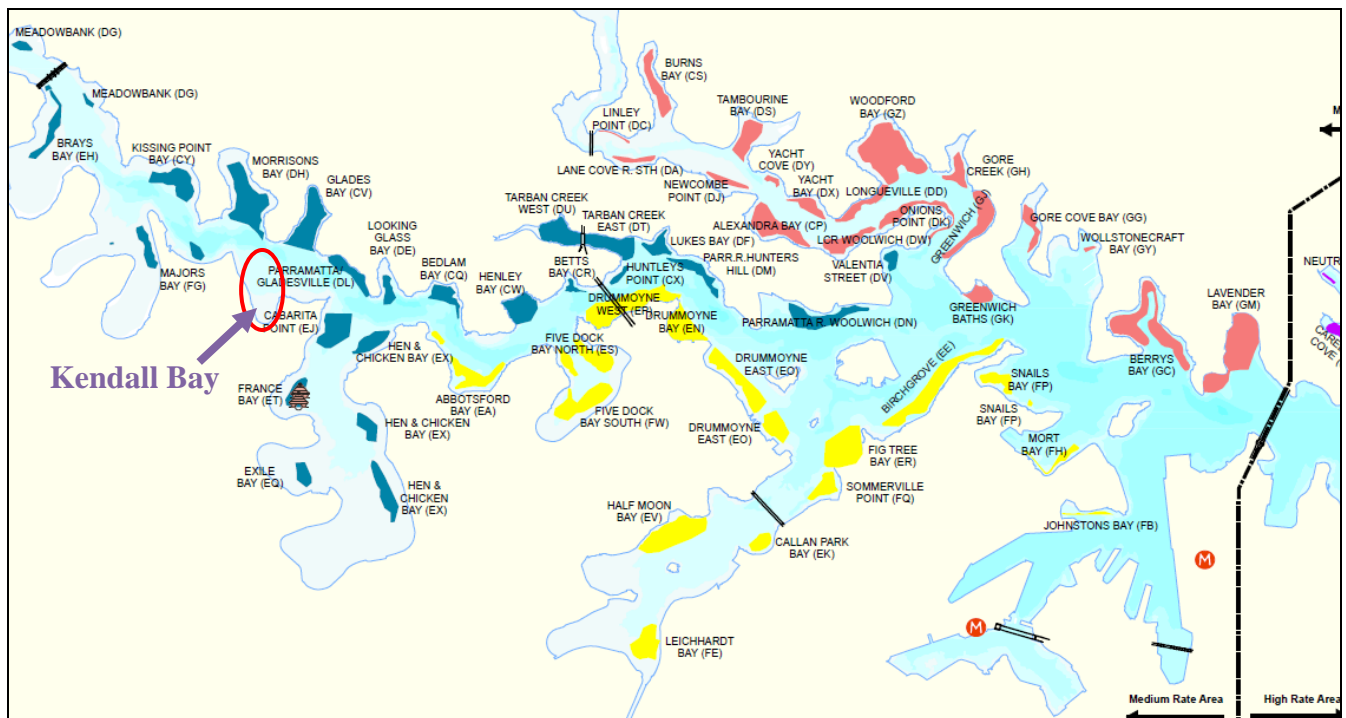


Figure 10.1 Extract from NSW Maritime Sydney Region Mooring Areas Map (Area D moorings are shown in yellow and Area F moorings are shown in blue) (NSW Maritime, 2010c).

As shown in Table 10.1 and Table 10.2 as of 2 March 2011 there were only 45 applications for moorings in Area F, while there were a total of 215 applications for moorings in Area D. Consequently, the Commission is concerned that the demand for berths may be significantly less than that indicated in the Proponent's Environmental Assessment. NSW Maritime has also advised that it is currently reviewing speed limits along the Parramatta River, so it's possible that speed limits may be reduced. This would make it even less feasible to undertake trips from Kendall Bay to the areas east of the Harbour Bridge.

Table 10.1 NSW Maritime Priority Waiting List Sydney Harbour Area F (NSW Maritime (2011))

Bay Code	Bay Name	Total No. of Applicants	Date Last Mooring Allocated	No. of Private Moorings
Sydney Harbour (Area F) updated 2/03/2011				
CQ	BEDLAM BAY	6	10/05/2010	39
CR	BETTS BAY	1	25/02/2011	20
CV	GLADES BAY	2	2/02/2011	53
CW	HENLEY BAY	0	18/02/2011	40
CX	HUNTLEYS POINT	0	15/02/2011	16
CY	KISSING POINT BAY	3	26/11/2010	57
DE	LOOKING GLASS BAY	1	18/02/2011	27
DF	LUKES BAY	2	3/05/2010	28
DG	MEADOWBANK EAST/WEST	2	12/11/2010	20
DH	MORRISONS BAY	4	30/12/2010	106
DL	P/R GLADESVILLE	0	11/11/2010	20
DM	P/R HUNTERS HILL	2	10/02/2011	33
DN	P/R WOOLWICH	2	5/08/2010	12
DT	TARBAN CREEK EAST	2	31/10/2009	20
DU	TARBAN CREEK WEST	2	23/02/2011	67
DV	VALENTIA STREET	1	29/11/2010	25
EH	BRAYS BAY *	0	28/02/2011	62
EJ	CABARITA POINT *	4	30/08/2010	14
EQ	EXILE BAY *	4	18/06/2010	18
ET	FRANCE BAY *	1	20/12/2010	31
EX	HEN & CHICKEN BAY *	4	10/02/2011	69
FG	MAJORS BAY *	2	29/04/2010	20
Subtotal	Northern Shores	30		583
Subtotal	Southern Shores *	15		214
Total		45		797

*Note: Moorings on southern shore denoted with an asterisk **

Table 10.2 NSW Maritime Priority Waiting List Sydney Harbour Area D (NSW Maritime (2011))

Bay Code	Bay Name	Total No. of Applicants	Date Last Mooring Allocated	No. of Private Moorings
Sydney Harbour (Area D) updated 2/03/2011				
EA	ABBOTSFORD BAY	5	9/02/2011	49
EE	BIRCHGROVE	28	29/11/2010	82
EK	CALLAN PARK BAY	9	7/12/2009	26
EN	DRUMMOYNE BAY	7	27/01/2011	51
EO	DRUMMOYNE EAST	17	17/02/2011	83
EP	DRUMMOYNE WEST	6	1/03/2011	29
ER	FIG TREE BAY	7	1/02/2010	5
ES	FIVE DOCK BAY NORTH	6	23/02/2011	105
FW	FIVE DOCK BAY SOUTH	14	15/12/2010	66
EV	HALF MOON BAY	18	12/05/2010	64
FB	JOHNSTONS BAY	23	1/03/2011	4
FE	LEICHHARDT BAY	28	18/01/2010	69
FH	MORT BAY	23	8/10/2010	25
FP	SNAILS BAY	17	12/07/2010	29
FQ	SOMMERVILLE POINT	7	25/03/2010	30
Total		215		717

10.1.3 Use of Mooring Applications as a Measure of Demand

The Commission also questions the Proponent's assumption that the mooring waiting list figures are an accurate measure of demand for marina berths. NSW Maritime's *NSW Boat Ownership and Storage Report July 2010* (NSW Maritime 2010a) explains that raw figures probably disguise the real picture for mooring demand. Applicants pay a fee to join a waiting list for a particular mooring area and, when a site becomes available, it is offered to the first applicant on the list. Should the applicant choose not to take the mooring, then they are sent to the end of the queue and the next eligible applicant is offered the mooring. The report notes that some moorings in high demand areas have long waiting lists and while some have a rapid turnover, others have little movement. For example, Johnstons Bay has 4 moorings and, in 2009, had 20 applicants on its waiting list. The last reallocation of a mooring in Johnstons Bay, however, occurred in 1991.

The Commission considers that there are likely to be a number of people who already have their vessels moored in the Harbour who are on waiting lists for multiple mooring areas around Sydney Harbour, in the hope that they might obtain a mooring in one of their preferred locations.

The Commission also met with NSW Maritime to discuss the proposal. The Commission was advised that:

- there was no significant demand pressure that required development of a new marina west of the Sydney Harbour Bridge; and
- given the contamination levels in Kendall Bay, the site was not considered optimal for a marina.

As a result, the Commission considers that there are a number of issues with the current demand figures cited in the Environmental Assessment and the justification for the proposal.

10.1.4 Alternative Supplies Available

Even if the Commission were to accept the figures presented in the Environmental Assessment of the apparent demand for 193 berths/moorings, 34 of these could be filled by vacancies at existing marinas, although for whatever reason, the applicants for the moorings have not chosen to hire the available berths. If these existing available berths were occupied, there would be a remaining demand for 159 berths and consequently the proposed 172-berth Marina would exceed the current the demand.

The Department of Planning has also advised the Commission that there are currently a number of potential commercial boat storage facilities proposed for the region. These include:

- a dry boat storage facility, with capacity to store 670 vessels at Rozelle, approved by the Minister for Planning in 2007;
- an adopted master plan which includes dry boat storage for 250 vessels and 50 wet berths at the former ADI Site at Putney (on the northern side of the River);
- an application to expand the Cabarita Marina by 47 berths; and
- an application for a 92-berth marina and dry storage for 62 vessels at Berry's Bay (also on the northern side of the River). (Department of Planning, 2011)

The Commission recognises that some of these proposals are subject to development consent or approval and may not eventuate. Nonetheless, a number of potential alternative options exist to meet the demand identified in the Environmental Assessment. The proposals at Rozelle and Berry's Bay would also have much better access to the Harbour and the Ocean.

10.1.5 Ability of the Proposed Marina to Satisfy Demand for Supplies and Servicing

The proposed Marina would not supply the full range of services required to run and maintain the vessels berthed at the Marina. Submitters raised concerns about the lack of a fuel supply system at the proposed Marina. In particular, submitters were concerned that the vessels associated with the Kendall Bay Marina would be likely to use the fuel supply facilities at the Cabarita Marina and that this would add additional pressure and maintenance costs on those facilities. While marinas are not required to provide fuel supply services, the Commission recognises that the proposed facility would not have the capacity to meet the servicing and supply needs of its clients. Consequently the proposal would be incapable of satisfying the full extent of any boating demand in the region. Rather than alleviating demand for marine infrastructure, the proposal has the potential to generate further demand for boating servicing and fuel supply facilities.

10.2 FUTURE DEMAND

Based on the trends in vessel ownership figures, the Environmental Assessment forecast that total vessel ownership numbers and associated berthing demand would grow from 14,562 in 2009 to 14,990 in 2010 and 19,320 in 2020. The assessment also found that there was a trend towards ownership of larger vessels and that the proposed Marina would cater to this anticipated demand for larger berths. NSW Maritime's (2010a) *NSW Boat Ownership and Storage Report July 2010* also forecasts that the fleet of vessels 6 m or longer will grow and (consistent with the trend for growth projected in the Environmental Assessment) suggests that 77% of the new recreational boats in Sydney Harbour are expected to be large boats. While NSW Maritime (2010a) notes that the projected levels of growth are relatively subdued (around 1% a year), Sydney Harbour is said to have the highest demand for on-water storage of any region in the state and relatively few avenues for expansion.

The NSW Boat Ownership and Storage Report July 2010 (NSW Maritime (2010a)) includes a number of recommendations for satisfying this demand, including “matching supply of marina berths with demand”. While the Commission recognises that there is likely to be demand for marina berths in some areas of the Harbour, and that this demand is likely to increase in the future, the Commission is not satisfied there is any robust evidence of demand for a marina in Kendall Bay.

Furthermore, given Kendall Bay’s distance from the Harbour Bridge and the Pacific Ocean, the Commission considers there may not be sufficient demand to justify construction of a marina in this location, now or in the foreseeable future.

10.3 CONCLUSION

While the Commission recognises that marinas and other berthing or mooring options in the area have relatively high occupancy rates (80-100%), evidence supporting demand for a marina in Kendall Bay is unconvincing. Furthermore, the Commission is not satisfied there is sufficient demand to justify the negative impacts of the proposal as identified in previous sections of this report. The Commission concludes that:

- there is unlikely to be strong demand for berths in Kendall Bay, given its distance from key destinations east of the Sydney Harbour Bridge;
- there are alternative boat storage options proposed for the area, which would more than satisfy the demand as identified by the Proponent; and
- the current demand is not considered sufficient to warrant alienating a significant public asset for a commercial marina. This is consistent with the tests for acceptability of development set out in the Sydney Harbour DCP (that there is an established demand for the development).

11 OTHER SIGNIFICANT ISSUES RAISED IN SUBMISSIONS

11.1 HAZARDS AND RISKS

A number of submitters raised concerns about the potential hazards and risks to residents in the event of a fire or explosion at the Marina. The Environmental Assessment states that the proposal does not meet the criteria in *State Environmental Planning Policy No 33 – Hazardous and Offensive Development* (SEPP 33) and consequently is not a hazardous or offensive development. The Proponent has also advised that there would be a minimum of 70 m between any vessel on the Marina and the nearest residence and considers this would provide a sufficient buffer such that buildings would not be affected by a fire at the Marina.

While the Commission recognises this buffer would provide some protection for residents, as discussed in Section 6.4, the Marina's limited emergency access would potentially exacerbate the severity of a fire at the Marina. While acknowledging that the proposal would not be a hazardous or offensive development, as defined in SEPP 33, the Commission considers that the presence of 172 vessels at the Marina would create an additional risk for residents and people using the foreshore walkway.

11.2 OBSTRUCTION OF PASSIVE RECREATION

Submitters also objected to the proposal on the basis that it would restrict access to the Bay for passive recreational uses, such as rowing or kayaking, as well as blocking views of passive recreation in the Bay and the River. Submissions from schools in the area advised that the area is used as a training ground and nursery for their junior rowers and also that the channel is heavily used by training rowing crews. Aside from the safety risks which have been addressed in Section 9, the Commission notes that the proposal would be a significant obstruction in the Bay and would significantly reduce the area available for passive recreational craft. While the Commission has not quantified use of Kendall Bay by passive recreational craft in the Bay, the Breakfast Point Resident's Group have provided a number of photographs of rowers and kayaks in the Bay (see Figure 11.1 and Figure 11.2 (Breakfast Point Residents Group, 2010)) and the Commission has also observed kayaks and other small craft in use in the Bay.



Figure 11.1 Rowers in Kendall Bay (photograph, sourced from the Breakfast Point Resident's Group submission to the Department (Breakfast Point Residents Group, 2010))

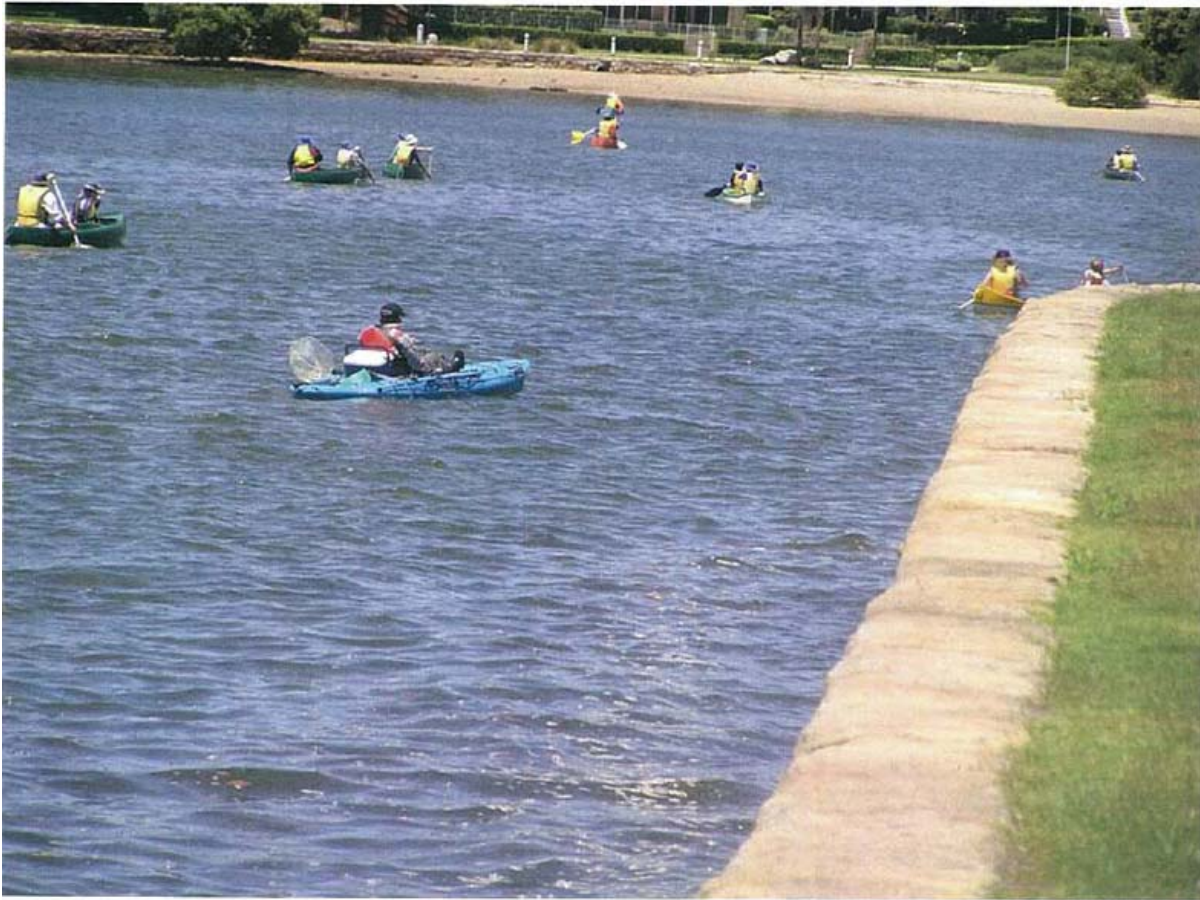


Figure 11.2 Kayaks in Kendall Bay (photograph sourced from the Breakfast Point Resident's Group Submission to the Department (Breakfast Point Residents Group, 2010))

The Commission considers that the proposal would severely reduce passive recreation in the Bay, as the Marina would:

- occupy a large portion of the Bay, substantially reducing the area available for recreational use;
- block approximately half the entrance, making navigation in and out of the Bay more difficult and hazardous;
- reduce the Bay's suitability as a training ground for junior rowers and kayakers.

The Commission is concerned the Marina would negatively affect the public use of the Bay for passive recreation during both construction and operational phases.

11.3 IMPACTS AND USE OF THE KIOSK

The proposed kiosk has the potential to generate additional impacts, distinct from those of the Marina. These impacts on nearby residents include:

- increased visual impacts;
- additional waste that would need to be managed;
- increased traffic;
- additional parking requirements;
- increased pressure on the amenities provided at the Marina; and
- noise from diners, as well as from the transport of goods and waste back and forth between the car park.

Submissions also raised concerns about the proposed kiosk, in particular that its hours of operation would be extended and that it would be used as a restaurant. A restaurant serving main meals (especially during the evening), whether licensed or not, would generate additional impacts which have not been assessed by the Proponent. Operation of a water-based restaurant is also prohibited in this zone. The Commission considers that if the facility was used as a fully serviced restaurant, with extended operating hours, it would increase the severity of the impacts mentioned above and would also generally affect the night-time ambience and character of the Bay.

Because water-based restaurants are prohibited, the Commission does not expect the kiosk could be easily converted into a restaurant. The Proponent has indicated that the small kitchen would limit the ability of the kiosk to cater for a full restaurant service and the Commission also notes that the logistics of moving deliveries and waste back and forth would make it difficult to operate a restaurant on the Marina. While the Commission considers that the Proponent would be required to submit a modification application in order to request extended operating hours, it also notes that it is difficult to differentiate between the operations of the proposed kiosk and the definition of a restaurant.

11.4 DEVELOPMENT STANDARDS AND PRACTICES AT BREAKFAST POINT

Some of the residents of Breakfast Point advised the Commission they had concerns about the Proponent's track record in relation to the development currently occurring at Breakfast Point. Residents are concerned the Proponent has ignored their concerns about 'development creep' in the area, with the number of dwellings increasing a number of times since the 1999 Master Plan proposed 1,650 residential dwellings for the area. Residents also raised concerns that there have been a number of deficiencies with the buildings that have been constructed to date, and as a result they are concerned that the installation of the Sediment Protection System and construction of the Marina would be likely to be marred by poor construction methods and practices. While the Commission notes that these matters have been raised, the Commission does not consider they are relevant to the current review of the project.

11.5 PUBLIC CONSULTATION AND INFORMATION ABOUT THE PROPOSAL

Many of the residents of Breakfast Point and the surrounding area have raised concerns about the perceived lack of public consultation undertaken, particularly by the Proponent. Some residents have also raised concerns that they were not informed of the plans to develop a marina in Kendall Bay when they purchased their properties, and others, while aware of a proposal, understood it was to be a small (30- 50 berth) private marina, and consequently significantly different to the one proposed. The Proponent, however, has indicated that its plans to develop a marina in the Bay were disclosed to all prospective buyers.

While the Commission understands that the 2002 Master Plan and 2005 Concept Plan did indicate some form of marina or boat storage may be developed in the Bay, the size, scale and nature of this proposal are considered to be significantly different to any of the older plans the Commission has seen. As shown in Figure 11.3, the 2002 Master Plan indicated that the original wharf was to be refurbished to accommodate water-based activities and that the adjoining land was to be developed as a waterfront-activities precinct with commercial activities such as shops, cafes, offices and hotels being considered for the area.

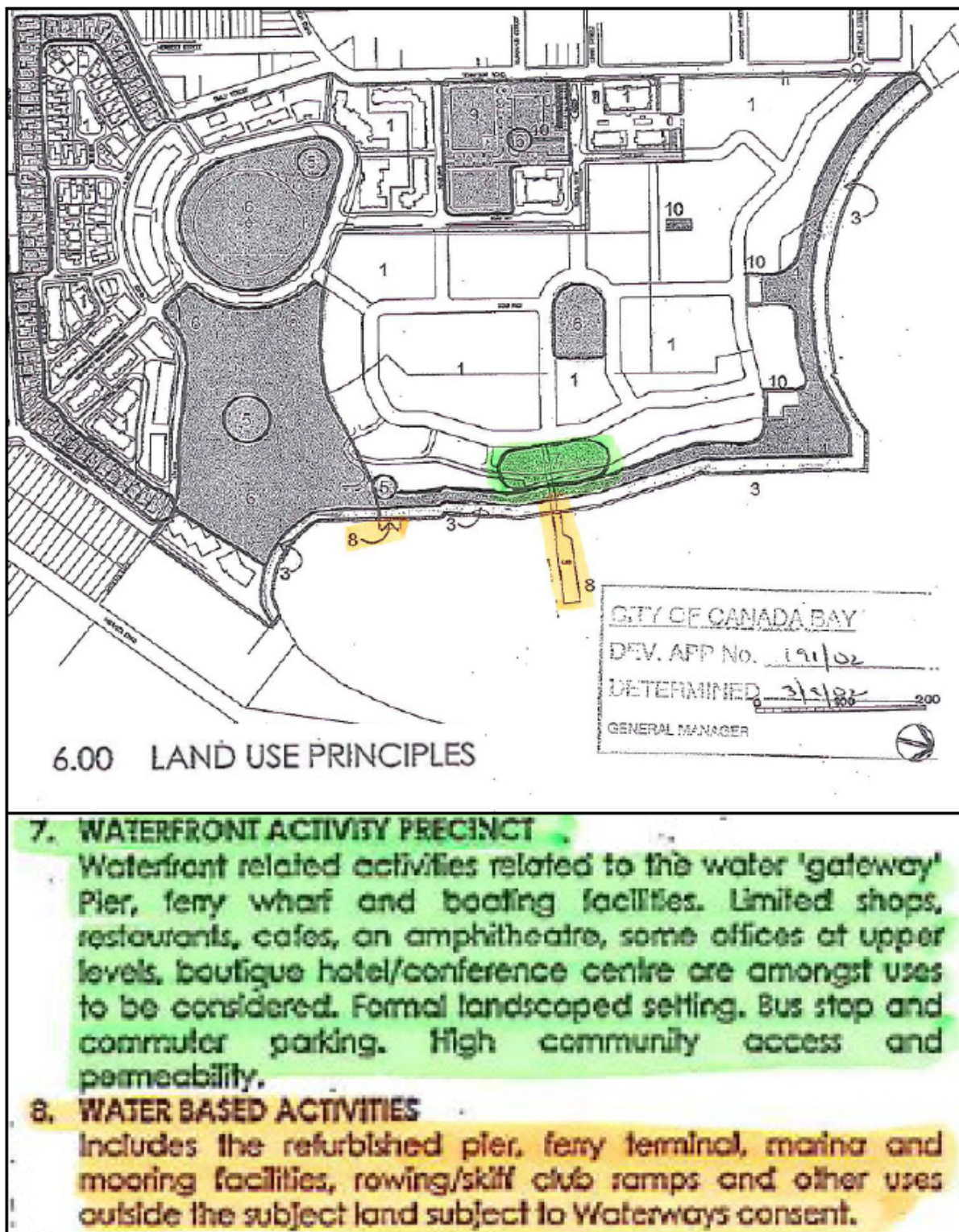


Figure 11.3 Extract for the 2002 Master Plan for Breakfast Point, provided in the Proponent's Response to Submissions (Breakfast Point, 2011)

The Commission considers that this is a significantly different proposal, noting that the Waterfront Activities Precinct would have provided a larger buffer between the Marina and the residential areas, reducing conflicts between these land uses. The Commission also notes the 2002 Master Plan gives no indication of the scale of the current proposal, but implies the facilities would be attached to the original wharf, which has since been demolished.

It is the Commission's view that the previous indicative plans for a marina in the Bay are significantly different to the current proposal and consequently their relevance in supporting the proposal is highly questionable.

11.6 OTHER ISSUES

Other issues of particular concern to residents included:

- The lack of a Social Impact Assessment. The Commission considers that the land use conflicts, generated from the operations of the commercial Marina in a residential area (maintained through a community plan and community scheme) would generate social conflict and anxiety between the Breakfast Point community and the Marina operator and patrons.
- Increased traffic, particularly given the Community Association is responsible for the maintenance of the local roads in Breakfast Point and also because the number of dwellings to be constructed in the area has increased since the original master plan was approved.

For further details of the issues raised in submissions, a brief summary is provided in Appendix B and Appendix C to this report.

The Commission has not commented on all the issues raised in submissions, however it has made particular note of those issues that it considers to be of significant concern, or that were frequently repeated in the public submissions and at the Public Hearings.

12 CONCLUSIONS AND RECOMMENDATIONS

This section sets out the main findings and recommendations of the review. The Terms of Reference requested the Planning Assessment Commission to:

1. ... carry out a review of the Kendall Bay Marina Project and prepare a detailed *Environmental Assessment report which advises on:*
 - a) *the suitability and long-term effectiveness of the proposed sediment protection system;*
 - b) *the environmental impacts of the Project, and whether these impacts can be suitably managed or offset to ensure an acceptable level of environmental performance; and*
 - c) *the issues raised in submissions.*
2. ...
3. ...conduct a public hearing and provide its final report on the matter to the Director-General as soon as practicable after the public exhibition period for the Project closes.

The Commission has addressed each of the components of the first Term of Reference in detail in this report. In doing so it has considered many thousands of pages of technical material and submissions, interviewed state and local government officials, consulted national and international experts, conducted two days of public hearings and held multiple meetings of the Commission. This report presents the unanimous views of the Commission in response to the Terms of Reference.

12.1 SITE HISTORY AND STRATEGIC CONTEXT

The sediments of Kendall Bay have become contaminated from operations associated with the Mortlake Gasworks, which occupied the adjoining land for much of the last century. As a result, two areas identified to pose human health risks are to be remediated using current technologies (i.e. dredging, subject to planning approval). Currently the contaminated sediments in the remainder of the Bay are to be managed by prohibiting any further disturbance. Development of new technologies may make it cost-effective to remediate these sediments at a later date. Contamination of the sediments in Kendall Bay, and the need to manage these sediments, is a significant constraint to any development proposed in the Bay.

The extensive residential development around Kendall Bay means that there is now no buffer between the residences and the proposed Marina and the Marina car park is some 230 m away from the Marina entrance.

12.2 IMPACTS OF A MARINA ON MANAGEMENT OF SEDIMENT CONTAMINATION

A Sediment Protection System is proposed to prevent the disturbance of contaminated sediments in the Bay. The Sediment Protection System would consist of a cap comprising a 7 mm thick geotextile barrier, to be covered by approximately 300 mm of basalt rock fragments. Piles required to support the Marina would then be inserted through the cap and fitted with a collar to seal the gap between the cap and the pile.

Emplacement of the cap and the piling associated with the construction of the Marina would inevitably cause mobilisation of some fine sediments and pore water containing contaminants. Great care would be required to minimise and confine particle release behind silt curtains during construction.

The life expectancy of the proposed geotextile barrier is untested, however the Commission expects it is likely to be less than a third of that claimed by the Proponent. The physical

stability and integrity of the geotextile cover is also questionable in the Kendall Bay environment. The cap would destroy the integrity of the existing benthic ecosystem by sealing it off from the overlying water system.

On the evidence available to the Commission the proposed level of capping is inadequate in terms of depth and materials and would not prevent additional disturbance and migration of the contaminants in the underlying sediments. However, since a substantial part of the Marina footprint is in relatively shallow water, application of a greater depth of capping could reduce the berthing capacity of the Marina by a substantial margin.

There is an agreement by Jemena to remediate two areas of the Bay, one which is squarely within the proposed Marina footprint. Remediation of the rest of the contaminated area at some future date is also a possibility, especially with the development currently underway of new in situ treatment technologies. The presence of a cap will be a major impediment to the adoption of such remediation activities, especially if an appropriate depth of capping is used. Remediation of the agreed areas of near-shore sediments by Jemena should precede any consideration of cap installation because of likely impacts of this dredging on bed geomorphology.

Outside the two specific areas currently agreed to be remediated by Jemena, the 'do not disturb' approach adopted by DECCW to contaminated sediments in Kendall Bay is appropriate given the current risk assessment and available remediation technologies. The Commission is of the view that construction and operation of a commercial marina is incompatible with this management strategy.

12.3 ACCESS TO THE MARINA

Due to the layout of the existing residential development and the presence of the foreshore walkway, the proposed Marina would not have direct vehicle access. The proposal would include 58 car-parking spaces. However, these would be provided on a separate parcel of land, approximately 100 m west of the Marina. The Marina would only be accessible by footpaths in the Breakfast Point residential area, which operates under a community plan and community scheme. The distance from the car park to the Marina entrance via these footpaths is 230-300 m.

The Commission found that:

- The lack of direct vehicle access to the Marina would hinder operations to the extent that illegal parking and/or use of vehicles on pedestrian footpaths would be likely to occur.
- The parking provisions proposed are inadequate as they are remote from the Marina and they do not include sufficient space for service vehicles and kiosk patrons.
- It is unclear whether emergency access to the Marina is sufficient to meet the requirements of NSW Fire and Rescue.
- Legal and long-term access to the site is unresolved.

The Commission considers that by developing the site adjoining the foreshore for residential purposes, the Proponent has constrained the access options to the point that they would hinder the safe and efficient operations of a marina in Kendall Bay and would give rise to significant conflict between residents and the users of the Marina facilities.

12.4 POLLUTION AND WASTE ASSOCIATED WITH THE CONSTRUCTION AND OPERATION OF THE PROPOSED MARINA

The proposal would generate a number of pollution and waste impacts including impacts on water quality, noise pollution, air emissions and waste.

The Proponent has presented inadequate evidence that the Marina can be managed to ensure:

- proper disposal of liquid and solid wastes at all times; and
- management of operational noise to adequately minimise impacts on Breakfast Point residents at all times.

Were the project to be approved, adaptive management would be essential during the construction phase to ensure escape of contaminants from the sediment was minimised. This would involve regular monitoring and appropriate adjustment of construction techniques.

Given the potential severity of the construction noise impacts, screw piling would need to be investigated with a view to adopting it provided the environmental benefit of noise reduction can be demonstrated to be achievable, consistent with minimal disturbance of the contaminated sediments.

The Proponent has not demonstrated an adequate level of planning for the management and removal of solid waste from the Marina, given the separation of the Marina from the accessible land areas.

12.5 VISUAL IMPACTS OF THE MARINA

Although Kendall Bay was historically occupied by the Hunter Wharf, where colliers delivered coal to the Mortlake Gasworks, the Bay is now an open bay, free of significant nautical infrastructure or vessel moorings. The Bay is surrounded by a public foreshore walkway and also adjoins Cabarita Park and Ferry Wharf and the residential area of Breakfast Point.

The proposed Marina would be visible from most sites around Kendall Bay. A range of sensitive receivers would be affected by the proposal, particularly residents living around the foreshore and people using the Bay and foreshore for recreational purposes.

The proposal would have high or severe impacts on views from some vantage points around Kendall Bay, including public places and residences. It is also inconsistent with some provisions of the Sydney Harbour REP and Sydney Harbour DCP.

The extent and severity of visual impacts on both private residents and the many users of the extensive public areas in the vicinity of the proposed Marina is considered unacceptable.

12.6 NAVIGATION AND SAFETY

The proposed Marina lease area lies mostly within Kendall Bay, however the north-east corner extends to within 140 m of the centre of the Parramatta River navigation channel. The Marina would also encroach onto the pathways of the ferries entering and leaving the Cabarita Ferry Wharf.

The current ferry operations would need to change to avoid collision with the proposed marina infrastructure. Even on an altered path, ferries would still pass close to the Marina. The Commission considers that the concerns of Sydney Ferries about liability claims arising

from damage to vessels berthed at the Marina are real and should be given careful consideration.

The Commission concludes that the impact of the Marina on ferry operations would cause a reduction in ferry services based on the size of the current fleet and that any such reduction would not be in the public interest.

12.7 DEMAND FOR MARINA BERTHS IN KENDALL BAY

While the Commission recognises that marinas and other berthing or mooring options in the area have relatively high occupancy rates (80-100%), evidence supporting demand for a marina in Kendall Bay is unconvincing.

In any event, there are alternative boat storage options proposed for the area, which would more than satisfy the demand as identified by the Proponent.

The Commission concludes that the potential impacts of the Marina, as identified in the various sections of this report, outweigh any limited demand that may exist for a marina in Kendall Bay.

12.8 OTHER ISSUES

Other issues of concern include:

- The proposal would increase the hazards and risk to nearby residents and members of the public using the foreshore walkway.
- The proposal would significantly reduce the Bay's capacity to cater to passive recreational users.
- The kiosk would generate additional impacts, over and above those of the Marina, and may be found to be prohibited development (as a water-based restaurant).
- The proposal is expected to have social impacts that would affect the local community and the character of the area.

12.9 RECOMMENDATION

The Commission considers the impacts of the proposal are unacceptable across a range of important factors. The Commission also considers that the site-specific constraints of contaminated sediments, lack of direct access for vehicles and lack of any buffering for existing and proposed residential development would make Kendall Bay an unsuitable location for any commercial marina. The Commission recommends that the project be refused.

13 REFERENCES

Addenbrooke Pty Ltd v Woollahra Municipal Council [2008] NSWLEC 190 (13 June 2008)

AECOM (2009). Sediment management report: proposed inner West Marina. In: Inner West Marina Project Application Volume 9, Appendix 13, TLB Engineers, July, 2010.

Ameratunga, J., Boyle, P., Loke, K., Hornsey, W., Strevents, M. (2007). Use of geotextiles to overcome challenging conditions at seawall project in Port of Brisbane. Coffey and Partners. http://www.coffey.com/Uploads/Documents/use-of-geotextiles_20070122033531.pdf

ANZECC/ARMCANZ (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council, Agricultural and Resource Management Council of Australia and New Zealand, Canberra, ACT.

APP Corporation (2002). AGL Mortlake Gasworks Rehabilitation. <http://www.app.com.au/aus/pdf/industrial/AGL%20MORTLAKE%20GASWORKS%20REHABILITATION.pdf>, accessed 13 April 2011.

Blaxell, G. (2008). Mortlake. In: the Dictionary of Sydney. <http://www.dictionaryofsydney.org/entry/mortlake>, accessed 13 April 2011.

Breakfast Point (2011). MP07_0006 – Inner West Marina, Proponent’s Response to Submissions from Agencies and the Public 3 March 2011. Prepared on behalf of Breakfast Point Pty Ltd.

Breakfast Point Residents Group (2010). Opposing Submission Lodged by the Breakfast Point Residents Group INC. to MP07_0006. November 2010.

Cardno Ecology Lab (2009a). Inner West Marina Sydney: Aquatic environmental assessment. In: Inner West Marina Project Application Volume 3, Appendix 4, TLB Engineers, July, 2010.

Cardno Ecology Lab (2009b). Inner West Marina Sydney: Aquatic ecology studies. In: Inner West Marina Project Application Volume 3, Appendix 4, TLB Engineers, July, 2010.

CDBW (2005). Layout and Design Guidelines for Marina Berthing Facilities, California Department of Boating and Waterways.

Cox Engineering (2011). 4 Wheel Waste Container Commercial Mobile Garbage Bins. <http://www.coxengineering.com.au/product/3391/39197/660-litre-wheelie-bin>, accessed 13 April 2011.

CRWQCB (2011). Draft technical report for tentative cleanup and abatement order R9-2011-0001 for the shipyard sediment site, San Diego Bay, San Diego, CA. California Regional Water Quality Control Board, San Diego Region, Vol 2 pp 30-1 to 30-7.

Department of Planning (2011). *Draft PAC Issues Paper: Kendall Bay Marina*. January 2011.

- Easyquip (2011). 4 Wheel Bin Specifications.
http://www.easyquip.net.au/index.pl/wheelie_bins2, accessed 13 April 2011.
- Environment Canada (2005) *Randle Reef Sediment Remediation – Hamilton Harbour*
http://www.on.ec.gc.ca/laws/epad/responsible_authority_e.html, accessed 17 April 2011
- Hagerty, P and Trotman, T (undated) *In Situ Contaminated Sediment Management: Unique Case Studies*. <http://www.hagertyenvironmental.com/InSituSediment.pdf>, accessed 17 April 2011
- Heerten, G. (1984). Geotextiles in coastal engineering – 25 years experience. *Geotextiles and Geomembranes*, 1, 119-141.
- Mellor, D. (1992). Modern marina layout and design, *Civil Engineering Practice Spring* 1992, pp 87-102.
- Moore Equipment (2011). Mobile Waste Bin 660 Litre (BIN660).
http://www.mooreequipment.com.au/products_detail.cfm?prod_id=334&cat_id=182&CFID=8950602&CFTOKEN=17467075, accessed 13 April 2011.
- NSW Maritime (2010a). NSW Boat Ownership and Storage: Growth Forecasts to 2026. July 2010. http://www.maritime.nsw.gov.au/docs/wh/boat_storage.pdf
- NSW Maritime (2010b). RE: Kendall Bay Marina Project, Breakfast Point (MP07_0006) – Exhibition of Environmental Assessment. Submission to the Department of Planning. 30 November 2010.
- NSW Maritime (2010c). Sydney Harbour Moorings Area. 14 September 2010.
<http://www.maritime.nsw.gov.au/docs/recboat/mooringmap-sydney.pdf>
- NSW Maritime (2011). Priority Waiting List – Sydney Region, updated 2/03/2011.
http://www.maritime.nsw.gov.au/rec_boating/waitinglist_sydney.html, accessed on 29 March 2011.
- O'Connor, S. Whelan, M. and Bygness, R. (2006). San Diego Bay gets an underwater facelift. *Geosynthetics*, October.
http://geosyntheticsmagazine.com/articles/1006_f2_seafloor_remediation.html
- Palermo, M. R., Miller, J., Maynard, S., and Reible, D. (1998). Guidance for in-situ subaqueous capping of contaminated sediments, EPA 905-B96-004, Great Lakes National Program Office, U.S. Environmental Protection Agency, Chicago, IL.
<http://www.epa.gov/glnpo/sediment/iscmain/index.html>
- RTA (2002). Guide to Traffic Generating Developments – Version 2.2, October 2002. Roads and Traffic Authority, Transport Planning Section 2002.
- Rollin, A. (2004). Long term performance of geotextiles 57th Canadian Geotechnical Conference, Quebec City.

Simpson, S.L., Pryor, I.D., Mewburn, B., Batley, G.E. and Jolley, D. (2002). Considerations for capping metal-contaminated sediments in dynamic estuarine environments. *Environmental Science and Technology*, 36, 3772-3778.

Simpson, S.L., Batley, G.E. and Chariton, A.A. (2008). Revision of the ANZECC/ARMCANZ sediment quality guidelines. CSIRO Land and Water Report 8/07, 78 pages.

Schiff, K., Brown, J. and Diehl, D. (2006). Extent and magnitude of copper contamination in marinas of the San Diego Region, California. Southern California Coastal Water Research Project Technical Publication No 483.

Standards Australia (2001). Australian Standard: Guidelines for the design of marinas, (AS 3962 – 2001). Standards Australia International Ltd, Sydney.

Sulo (2009). 4 Wheeled Container Systems: 660 Litre Container. Accessed from http://www.mediasuite.com.au/cms/sulo/control/upFiles/Sulo_660_litre.2.pdf, 13 April 2011.

Sydney Ferries (2010). RE: Kendall Bay Commercial Marina. Submission to the Department of Planning. 15 December 2010.

TBL Engineers (2010). Inner West Marina Project Application. Dated 7 July 2010.

Tenacity Consulting v Waringah [2004] NSWLEC 140 (4 July 2004)

Transport NSW (2010). Kendall Bay Commercial Marina MP07_0006. Submission to the Department of Planning. 5 December 2010.

URS (2007a). Human health risk assessment of estuarine sediments adjacent to the former AGL Mortlake site. URS report for Alinta Ltd.

URS (2007b). Environmental risk assessment of estuarine sediments adjacent to the former AGL Mortlake site. URS report for Alinta Ltd.

USEPA (2005). Contaminated Sediment Remediation Guidance for Hazardous Waste Sites. United States Environmental Protection Agency Office of Solid Waste and Emergency Response Report No. EPA-540-R-05-012.
<http://www.epa.gov/superfund/health/conmedia/sediment/guidance.htm>.

14 LIST OF APPENDICES

Appendix A – Terms of Reference	75
Appendix B – Summary of Submissions received by the Department of Planning	76
Appendix C – Summary of Submissions received by the Planning Assessment Commission	84
Appendix D – Public Hearings Schedule	90

APPENDIX A
TERMS OF REFERENCE

Direction to the Planning Assessment Commission

Kendall Bay Marina Project

Section 23D(1)(b)(ii) & Schedule 3 of the *Environmental Planning and Assessment Act 1979*; &
Part 16B of the *Environmental Planning and Assessment Regulation 2000*

I, the Minister for Planning:

1. Request the Planning Assessment Commission (the Commission) to carry out a review of the Kendall Bay Marina Project and prepare a detailed Environmental Assessment report which advises on:
 - (a) the suitability and long-term effectiveness of the proposed sediment protection system;
 - (b) the environmental impacts of the Project, and whether these impacts can be suitably managed or offset to ensure an acceptable level of environmental performance; and
 - (c) the issues raised in submissions.
2. Direct, that for the purposes of carrying out the review, the Commission appoints Dr Graeme Batley, an independent expert, as a casual member of the Commission.
3. Request the Commission to conduct a public hearing and provide its final report on the matter to the Director-General as soon as practicable after the public exhibition period for the Project closes.



Tony Kelly M.L.C
Minister for Planning

Sydney

27 SEP 2010

2010

APPENDIX B

SUMMARY OF SUBMISSIONS RECEIVED BY THE DEPARTMENT OF PLANNING

A total of 343 submissions were received by the Department of Planning during the public exhibition of the project and in the months following. The following is a brief summary of the submissions received by the Department of Planning. The key issues are discussed in various sections of the Commission's report.

PUBLIC AUTHORITIES

Department of Environment, Climate Change and Water identified a number of concerns regarding the contaminated sediments within the proposed Marina footprint. In particular it raised concerns about the longevity of the proposed blanket, noting that the Proponent's Environmental Assessment lacked sufficient evidence of the long term durability of the proposed geotextile and basalt layers. DECCW also raised concerns that any long term liability associated with the blanket and the contaminated sediments may end up being transferred to the NSW Government as owners of the bed sediments in Kendall Bay. Consequently DECCW consider that an appropriate financial assurance would be required. DECCW also noted that the project would need to be co-ordinated so that the development of the Marina would not impact on Jemena's remediation works.

Sydney Ferries is strongly opposed to the proposal and expressed significant concerns that:

- The Marina would have a significant negative impact on ferries approaching and departing from Cabarita Ferry Wharf.
- The Marina would result in claims for compensation to damaged vessels, marina facilities or the proposed environmental protection mat on the sea bed.
- It has no intention of using the wharf proposed as part of the Marina.
- As a result of the Marina, ferries would need to use slow speeds when travelling past the Marina and would need to undertake time consuming tight turning into and out of the Cabarita Wharf. This would cause significant disruptions to timetables, with the loss of 1-2 services each day.
- The loss of services would be inconsistent with the State Plan which calls for an increase in public transport and the increasing demand for services along the Parramatta River corridor.

NSW Maritime noted the Marina would extend into the main navigational channel of the Parramatta River and that this area of the river is heavily used by a wide variety of vessels including recreational rowing boats, sailing boats, power boats, commercial vessels and ferries. NSW Maritime advised the Marina may cause increased congestion and vessel conflict and is likely to have an adverse impact on navigational safety. NSW Maritime considered that these adverse impacts on navigational safety could be minimised by reducing the number of berths and reconfiguring the north eastern corner of the Marina.

Roads and Traffic Authority (the RTA) recommended that:

- off street car parking and loading dock facilities need to be provided to the satisfaction of council;
- the car park, loading dock and driveways associated with the project should be in accordance with the relevant Australian Standards;
- a demolition and construction management plan should be required.

Sydney Ports advised that the Proponent would need to obtain the Harbour Master's approval for works involving the disturbance of the sea bed. Sydney Ports also raised concerns about navigation and safety impacts, particularly for barges travelling between White Bay and Duck Creek.

Sydney Water confirmed that there is sufficient capacity for the proposed Marina, and that connections to the drinking water and wastewater mains are located on Peninsula Drive.

NSW Transport requested that bicycle parking facilities should be provided on site, car parking provisions should be reduced to discourage private vehicle use and a green travel plan should be developed for workers and visitors to the site.

NSW Health advised that all liquid waste removal systems from boats and other facilities must be designed with appropriate safety systems to manage pump failures and spills. NSW Health also noted that a risk assessment should be undertaken for the recreational use of the environs adjacent or proximate to the Marina.

NSW Industry and Investment (NSW I&I) requested that construction of the Marina did not interfere with the remediation activities to be undertaken by Jemena, noting that the remediation works should be given priority as the remediation of highly contaminated areas will have flow-on benefits for the local and wider aquatic environment. NSW I&I also recommended management measures for boats in the Marina, relating to antifouling paints and mooring arrangements and to mitigate potential boat wash impacts on sediments and turbidity.

City of Canada Bay Council engaged two consultants to assess the impacts of the proposed Marina. The submissions from these consultants objected to the proposal and found:

- the proposed Marina and car park is inconsistent with the objectives, principles and provisions contained in the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*;
- the scale of the proposed Marina is inappropriate for Kendall Bay;
- the proposal would have detrimental impacts on views enjoyed by nearby residents and people using the foreshore; and
- the increased traffic and parking requirements of the Marina could not be adequately managed on the surrounding streets.

The submission also raised concerns about copper based anti-fouling paints, enforcement of environmental controls, the suitability and management of the silt curtains and the impact of piling. More details concerns were raised regarding the proposed Sediment Protection System, particularly:

- the interaction between the proposal and Jemena's remediation works;
- the impacts of pore water being released from the sediments in the Bay;
- the potential for anaerobic conditions to develop beneath the Sediment Protection System; and
- the suitability of the extent of the Sediment Protection System.

RESIDENTS, COMMUNITY GROUPS AND BUSINESSES

In support of the proposal

- It would provide additional and alternative berthing options on Sydney Harbour, accommodating the new boats that are being imported to Australia.
- As it would be a modern facility it would be more environmentally sensitive, than older marinas.
- It would be aesthetically pleasing and would add vitality to the waterfront.
- It would enhance the social amenity for the community
- It would provide a kiosk
- The fixed wharf would support the site's maritime heritage
- It would provide additional access to the harbour. In particular it's perceived to provide safe access for the elderly and disabled, enhance boating opportunities for families and provide berthing options with improved access (as users would not need to row to their boat at a mooring).
- It would provide day tripper berths for visitors to the area.
- The Marina would reduce the number of mooring sites required, clearing access to waterways currently obstructed by moorings
- It would stimulate the local economy by providing local employment opportunities.
- The Marina was always planned and owners signed off on it when they purchased their properties, the plans for a marina were one of the incentives for moving to Breakfast Point.

Issues of concern and objection

Management of Contamination in Kendall Bay

Very detailed concerns were raised about the measures proposed to manage the contaminated sediments in Kendall Bay, particularly relating to the proposed Sediment Protection System (the geotextile blanket and associated rock armour). These concerns are generally summarised into the following categories:

- The proposed Sediment Protection System is not considered to be adequate for its intended use. Amongst other things it is not considered to be:
 - a proven solution;
 - an effective solution;
 - sufficiently durable; and
 - sufficiently extensive,to appropriately mitigate the disturbance of sediments.
- Construction of the Marina may disturb and spread the contaminated sediments and contaminated pore water. Difficulties with underwater placement of the cap are likely to occur. The proposed curtains and other construction management measures proposed are considered inadequate.
- The timing and extent of remediation proposed to be undertaken by Jemena, the apparent lack of coordination between the two projects and apparent conflicts between the two projects would impact on the long term remediation of Kendall Bay.
- Lack of appropriate remediation is considered to pose significant human health risks.
- Odour impacts from the disturbance of contaminated sediments.
- Impacts on flora and fauna in the Bay.
- Containment of the contaminated sediment is not considered to be a suitable remediation outcome for Kendall Bay.

- Ability and requirements to undertake maintenance work on the Sediment Protection System.
- Responsibilities and costs should the Sediment Protection System fail.
- Impacts on the ability to undertake future remediation works.
- Defers responsibility to future generations.

Traffic, Access and Parking, including:

Traffic

- Increased traffic, including the cumulative impacts from the development of the surrounding buildings as well as the Marina traffic.
- Increased through traffic from passengers alighting from any ferries or other commercial vessels using the wharf.
- Increased traffic may cause congestion in the area.
- Traffic impacts on road safety for other vehicles on the road, as well as pedestrians and cyclist.

Access to the car park

- Use of private roads.
- Increased road maintenance costs, particularly for the roads maintained by the local community.
- Emergency access in and out of Breakfast Point was also raised as a concern due to the limited number of entrances/exits to the estate.

Parking

- A private car park would not provide adequate parking for visitors to the Marina, such as boat owners guest, those visiting the kiosk and those using the wharf and public berths.
- The proposed parking area is considered insufficient and, as a result:
 - the surrounding streets may become congested with parked cars;
 - parking for residents visitors will be limited;
 - parking for residents who own more than 1 car will also be affected
 - lighting from the car park would affect surrounding residents, particularly headlights from cars entering and leaving in the dark.

Access to the Marina

- Access to the Marina and associated safety issues, particularly with the use of buggies or trolleys to transport supplies and waste to and from the Marina, 'kiosk' and managers office.
- The feasibility of moving supplies and waste by trolley or buggy has also been questioned.
- Safety concerns of using vehicles and trolleys to move equipment, goods and waste between the car park and the Marina.
- The increased pedestrian traffic walking between residential dwellings to get from the Marina to the car park.
- Uncertainties regarding long-term access as the residents may seek to restrict access to the estate once it has control of the Community Association.
- Legal issues with the use of the foreshore walkway and footpaths, particularly if the access is for commercial gain.

Navigation and Conflicting Interests of Waters Users, including:

- Increased traffic in the Bay may result in more frequent navigation errors and accidents in Kendall Bay and the Parramatta River.
- Restrictions on ferry operations, reducing efficiencies.

- Safety concerns for rowers, kayakers and other water users, especially school rowing groups.
- Change in bathymetry on site and effective loss of waterway.
- Intrusion into the main channel of the waterway.

Noise, including:

- Construction noise, particularly from the piling.
- Concerns have been raised that development of other buildings in Kendall Bay have not complied with construction hours and that construction of the Marina will also produce noise outside of standard construction hours.
- Operational noise and sleep disturbance, including:
 - Noise from parties on the boats;
 - Noise from boat engines and other equipment on the boats;
 - Noise of the wind on the boats;
 - Noise from pump out operations; and
 - Noise from people using the wharf and travelling to and from the car park.

Visual impacts, including:

- Loss of views, including views of the nautical traffic and passive recreational activities which occurring in the Bay.
- Reflection and glare impacts.
- Loss of privacy.
- Lighting.
- The EA is considered to have understated the visual impacts of the proposal, particularly the height, scale and lighting at the Marina.
- The visual impacts of the car park were also raised as concerns, with submissions suggesting any car park should be underground.

Ambience, including:

- Loss of the tranquillity currently found in Kendall Bay.
- Loss of amenity for both residents and the many members of the public who use the foreshore walkway.
- Loss of one of the few undeveloped/unspoilt bays left on the Parramatta River.
- Impacts on public space at Cabarita Park.

Financial Costs to the Local Community, including:

- Increased traffic, both road and water traffic may generate additional maintenance and repair costs, for roads and other infrastructure, such as the sea wall.
- Installation of infrastructure connecting to the land may cause impacts.
- The proposed Marina will use and appropriate property owned by the Breakfast Point Community Association without adequate permission and/or compensation.
- Uncertainties and questions have been raised about responsibilities for duty of care, management of antisocial behaviour, hazards and risks and the implications of these on insurance costs.
- Potential access to the club and other infrastructure funded by residents was also raised as a concern.
- Need for the Marina to provide a fair contribution to the upkeep of Breakfast Point, particularly the roads, gardening and cleaning that are currently funded by the Community Association.

- Concerns the company operating the Marina would fold in the event of any major financial burden, such as a requirement to facilitate any future remediation works in the Bay.
- Negative impacts on property values.

Flora and Fauna, including:

The increased number of boats in the Bay could impact on the water quality in the Bay and have flow on effects on flora and fauna in the Bay.

Non-indigenous marine life could be introduced into the Bay from bilge water and the like. The Marina and associated vessel movements would change the coastal processes (such as water circulation and sedimentation patterns) which could impact on the mangroves in Kendall Bay.

The presence of the Marina could impacts on bird life in the Bay.

Odour, including:

- From garbage storage and transfer from the Marina to the Car Park for collection.
- Illegal fishing activities on the wharf.
- Fumes from vessel exhausts.

Fire, explosion or other emergencies and risk management on the Marina, including:

- Risk of fire or explosion and potential impacts on nearby residential buildings, particularly given the prevailing winds.
- Access to fire equipment on the Marina, given access is restricted, particularly afterhours.
- Emergency exits from the Marina should a fire breakout.
- Emergency access given the lack of direct street access to the foreshore and the limited structural capacity of the seawall to support emergency vehicles such as fire engines.

Pollution of the waters of Kendall Bay, including:

- Litter;
- Contamination from the use of copper- based antifouling paints;
- Fuel spills;
- Water pollution from washing and maintenance activities undertaken at the Marina.

Inadequacies, conflicts and inconsistencies in the Environmental Assessment and associated plans, including:

- Lack of social impact assessment
- The plans do not provide any space for golf buggies or trolleys to be stored
- The plans do not provide for waste collection and storage areas
- The wharf may be used by ferries in the future, but the EA does not consider the potential parking requirements of a public ferry wharf.
- Flora and fauna survey efforts were considered insufficient and the expertise of the consultants was questioned. Threatened species and cumulative impacts were not considered to have been appropriately acknowledged and considered.
- The alternatives to the project, considered in the EA, are not comprehensive.
- The surrounding Marina occupancy rates are not considered accurate.
- Concerns regarding the visual assessment were also raised.
- Concerns that the EA does not refer to/use the correct guidelines, such as the RTA's Guide to Traffic Generating Developments.

- The construction management plans, contamination and sediment protection system plans were not considered adequate
- Lack of a political donations disclosure statement

Public Interest, including:

- Private use of public space
- There is no public benefit
- Impacts on public transport services provided by Sydney Ferries
- Developer would be the only one to benefit from the project

Social Impacts, including:

- Antisocial behaviour, particularly associated with the public wharf and from people embarking and disembarking from party boats
- Security, particularly outside the operating hours of the managers office
- Ability to enforce rules
- The Marina would generate conflicts between residents, marina patrons and members of the public
- Social alienation impacts

Permissibility of the project, including:

- The project is inconsistent with the aims of the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*
- The Proponent does not have landowners consent for all the areas of land that would be used by the project. Of particular concern is the use of footpaths and roads in the estate, and travel between the car park and the Marina.
- Permissibility of the kiosk, that may become a water-based restaurant with extended trading hours
- Alienation of public open space

Reliability, Integrity, Motivation and Conduct of the Proponent, including:

- False advertising
- Lack of adequate public consultation
- Use of political donations to influence the decision
- When purchasing their properties owners were advised the Marina would be a small private marina and they would not have purchased their properties if they had seen the current plans

Lack of demand for the project, including:

- There are already 2 marinas either side of Kendall Bay
- Lack of need for a public wharf

Other issues, including:

- land use conflicts;
- close proximity of the Marina to residential dwellings;
- lack of a buffer (such as a road) between the Marina and residential areas,
- the lack of any fuel supply facilities would cause impacts on nearby marina facilities where vessels would need to stop to refuel, consequently submissions suggested the proposed Marina should be required to provide for public boat services at the Marina

(including fuel supply and sales, pump out and wash down facilities, rubbish collection and removal facilities);

- more suitable alternative sites are available for a marina;
- the size of the Marina has been questioned with some submissions recommending a smaller (40 berth) marina;
- berths should be affordably priced and offered to local residents first
- the wharf will encourage additional fishing in the Bay, which is prohibited due to the contamination;
- increased litter;
- pests/vermin;
- rubbish storage;
- greenhouse gas emissions from vessels using the Marina;
- health impacts;
- Other aspects of the Master Plan have not been implemented, eg the shops, hotel and conference centre, so the Master Plan should not be used as justification for the Marina.

APPENDIX C

SUMMARY OF SUBMISSIONS RECEIVED BY THE PLANNING ASSESSMENT COMMISSION

The following is a brief summary of submissions received by the Commission. The key issues are discussed in various sections of the Commission's report.

28 verbal presentations were made to the Commission (see Appendix D for a list of those who presented at the public hearing). 28 written submissions were also made to the Commission, these are summarised below. Please note that some of these submissions were supplements to submissions made to the Department of Planning, only those sections submitted to the Commission are summarised here, as the issues raised in submissions to the Department are summarised in Appendix B above.

The Breakfast Point Resident's Group submitted 3 petitions opposing the Marina:

- a local petition containing 409 signatures;
- a local online petition containing 219 names; and
- an international online petition containing 658 names.

They also submitted details of a poll on a Breakfast Point website which indicated 240 of the 262 participants opposed the Marina (91.5%).

The Breakfast Point Resident's Group also commissioned a survey of 200 local residents (owner occupiers only) which found that of these owner occupiers:

- 84% opposed the Marina proposal;
- 8% supported the Marina proposal;
- 8% had a neutral position; and
- 1% were unsure about the Marina proposal.

Key concerns of traffic and noise impacts were raised by over half of all participants, while a quarter of participants raised concerns about pollution, parking, increased costs (strata/road maintenance) and the influx of non-residents to the area.

#	Name	Objection/Support	Issue
1	Peter Coffey	Objection	<ul style="list-style-type: none"> • Disruptions to Ferry Services
2	Margaret and Tom Croker	Objection	<ul style="list-style-type: none"> • Inconsistent with plans for remediation of the Bay • Impacts on ferry services • Navigational safety • Not informed of plans for a marina when purchasing their property in 2007 • Increased traffic • Increased noise • Insufficient parking • Graffiti and vandalism
3	Magda Long	Objection	<ul style="list-style-type: none"> • The proposal is not in the public interest, it is only for private interest • Risks of disturbing the contamination in the Bay
4	Owners Corporation Carolina Apartments SP74764	Objection	<ul style="list-style-type: none"> • Residents who purchased properties were not adequately informed about proposal • No social impact study has been undertaken • Insufficient community consultation • Would support a marina subject to provision of additional parking, restricted operating hours, payment of contributions

#	Name	Objection/Support	Issue
5	Julian Brett	Objection	<ul style="list-style-type: none"> • Impacts on public access • Impacts on the amenity of the area
6	Ken Meredith	Objection	<ul style="list-style-type: none"> • Foreshore amenity • Impacts on views • Water pollution • Private versus public interest
7	Lynne Richardson	Objection	<ul style="list-style-type: none"> • Noise • Waste • Inadequate remediation
8	Robert Brown	Objection	<ul style="list-style-type: none"> • Inadequacies of the Sediment Protection System • Marina traffic would disturb the contaminated sediment • Conflicts with the remediation works proposed for the Bay • Loss of amenity • Noise • Access • Traffic • Parking • Visual impacts • Impacts on other users of the waterway • Impacts on Ferry services • Private use of public land • Inconsistencies with development controls and government policies • Safety • Size of the Marina
9	Lauren Allen and Stephen Kertanegara	Objection	<ul style="list-style-type: none"> • Impact on the Breakfast Point Community
10	Rosalind Hull	Objection	<ul style="list-style-type: none"> • Navigational safety - the River Channel considered too narrow for a 172-berth Marina • Impacts on foreshore amenity • Loss of foreshore access • Visual impacts • Shallow depth of the Bay would mean dredging would be required • Disturbance of contaminated sediment • Servicing issues • Traffic • Noise • Odour • Impacts on the foreshore walkway • No public benefit • Vehicle access/safety issues • Antisocial behaviour • Impacts on passive recreational craft • Greenhouse gas emissions from vessels
11	Sevasmia Patsiidis and Alf Licciardello	Objection	<ul style="list-style-type: none"> • Health risks from the contamination • Size of the Marina • Residents who purchased properties were not adequately advised of the proposal • Costs to the Community Association • Inadequate parking • Security and vandalism costs
12	Xiao Li	Objection	<ul style="list-style-type: none"> • Contamination • Loss of views

#	Name	Objection/Support	Issue
			<ul style="list-style-type: none"> • Close proximity of Cabarita Marina
13	Anique Vo	Objection	<ul style="list-style-type: none"> • No reason given
14	Ian Johnson	Objection	<ul style="list-style-type: none"> • Loss of amenity
15	Laurie Ihnativ	Objection	<ul style="list-style-type: none"> • Detailed concerns about the suitability of the Sediment Protection System • Further detailed concerns about the additional information on the proposed Sediment Protection System, provided in the response to submissions • Concerns were also raised about the structural capacity of the sea wall, and whether it could withstand the load of fire engines or other emergency vehicles parking near the edge in order to respond to emergencies • Disturbance of contaminated sediment during construction • The proposal does not satisfy the requirements of SEPP 55
16	John Sidoti, Liberal Party candidate (now Member) for the state electorate of Drummoyne	Objection	<ul style="list-style-type: none"> • The remediation proposed to be undertaken by Jemena is inadequate as it would cover less than 4% of the Bay. • The proposed car park is smaller than the car park for the Cabarita Marina, but the proposed Marina would have a greater number of berths. • Access is inadequate as the car park is too far away from the Marina and there is no access for deliveries to the kiosk and no parking provision for kiosk. • Residents have to maintain the roads that would be used by traffic accessing the Marina. • 24 hour access to the Marina would generate noise • The proposal would also impact on views from residences. • Vessels would generate pollution in the Bay. • The Marina would restrict and compromise access to the foreshore. • The Kendall Bay is one of the last unused bays in Sydney Harbour. • Residents should have been advised of the proposal when purchasing their properties.
17	Jocelyn and John Curteis	Objection	<ul style="list-style-type: none"> • Public versus private interest • Existing vessel storage facilities should be better managed to accommodate additional demand • Inconsistent with Sydney Harbour REP
18	R P Jeffery	Objection	<ul style="list-style-type: none"> • Intrusion and obstruction of the Marina into the Parramatta River • Impacts on navigational safety • Impacts on ferry services • Cumulative traffic impacts of the Marina and additional dwellings which have been approved in Breakfast Point • Not in the public interest
19	Breakfast Point Residents Group	Objection	<ul style="list-style-type: none"> • A number of petitions and surveys were submitted. • The adequacy of the Environmental Assessment and Response to Submissions was questioned. • The adequacy of the Sediment Protection System was questioned. • Proposed construction management measures such as effectiveness of the silt curtains. • Issues raised by Laurie Ihnativ and R P Jeffery

#	Name	Objection/Support	Issue
20	G Pesce	Objection	<ul style="list-style-type: none"> • Does not agree with the Proponents argument that the Marina will compliment the residential development, noting that if it was a feature of Breakfast Point it would have been developed first, in order to increase the value of the dwellings being sold by the developer. • Visual impacts of the Marina from heritage items • Impacts on items and sites of Aboriginal cultural heritage • The Marina does not connect to a public road system • Access from the Marina to the car park can only be obtained by using land owned by the Community Association • Cumulative traffic impacts of the Marina and the surrounding development, yet to be completed in Breakfast Point • Inadequacies in the traffic assessment and concerns that public transport is not permitted on the privately managed local roads. • Marina patrons would not have legal access to the Community Association land and consequently could not get to the car park. • Adequacy of the visual assessment • The proposal is contrary to the objectives of the Sydney Harbour REP • High visual impacts • Reflectivity impacts • The figures used to justify the demand for the project were not considered to be reliable
21	Lay Lee Kung	Objection	<ul style="list-style-type: none"> • Impacts on the foreshore walkway • Visual impacts • Impacts on the amenity of the area • Parking • Traffic • Noise • Use of the Community Association's land • Lack of consultation or permission to use the Community Association's land
22	Sydney Ferries		<ul style="list-style-type: none"> • Additional advice was provided showing that ferry patronage figures have steadily increased and are expected to continue to rise, especially with the expected population growth for the region and plans for the addition of new ferry stops along the Parramatta River.
23	Sydney Harbour Association	Objection	<ul style="list-style-type: none"> • The planning for Breakfast Point has not adequately provided for the proposed Marina. • Adverse impacts on dwelling amenity could have been avoided had the proposal been suitably planned for during the earlier stages at Breakfast Point. • The studies and management measures proposed have not been adequately prepared and consequently impacts identified have not been adequately addressed. • The Marina would not provide support services, such as cleaning and maintenance and consequently would act as a car park with little connection to the Breakfast Point Community. • The Marina would restrict access to the shoreline and waterway for community-based recreational water

#	Name	Objection/Support	Issue
			<ul style="list-style-type: none"> activities such as kayaking and rowing. The Marina must not compromise the remediation to be undertaken by AGL (now Jemena). Public scenic amenity would need to be protected.
24	Julie Rose and Allan Woodley	Objection	<ul style="list-style-type: none"> The Marina would destroy views and impact on the natural beauty and tranquillity of the area for both residents and users of the foreshore. There are a number of marinas nearby and they are not in residential areas. The Marina would generate traffic and privacy impacts. The Marina would generate water pollution which would impact on the beach, mangroves, marine and avian species in Kendall Bay. The Marina would alter the geomorphology and coastal processes in the Bay, with unknown impacts on the ecosystem in Kendall Bay. The Marina traffic would disturb the contaminated sediments in Kendall Bay and the Parramatta River. Risks to the environment and the foreshore amenity outweigh justification for a marina.
25	Rocco Mazzeo	Objection	<ul style="list-style-type: none"> When purchasing his property he understood a private marina was to be made available to property owners in Breakfast Point. Costs of remediation should be covered by AGL Raised concerns that the Marina would not sell fuel and that this would increase costs (including maintenance, insurance and operating and leasing costs) for neighbouring marinas where vessels would buy their fuel. A berth for a fuel barge should be provided to provide fuel to vessels at the proposed Marina. Hundreds of additional car-parking spaces would be required on special events days when boat owners would invite guests on board. It is unclear whether berths would be owned or leased. The kiosk operations and opening hours would need to be restricted to ensure it didn't create noise, parking and social impacts that would be associated with a restaurant or function centre. Boat wash from the additional vessels would need to be managed to prevent hazards and damage to vessels and infrastructure at neighbouring marinas. Requested NSW Maritime consider a no-wash zone around existing marinas and boat clubs.
26	Fairwater Community Association DP270299	Objection	<ul style="list-style-type: none"> Contamination and remediated Social impacts, particularly visual and noise Foreshore accessibility Lack of consultation
27	Sydney Rowing Club Stephen Handley	Objection	<ul style="list-style-type: none"> Public versus private interest Loss of public open space 1400 rowers use the river and would be directly affected by the Marina. River traffic and the size of the vessels on the River is increasing and causing greater impacts on rowers. The Marina would increase boat traffic on the river by at least 50%.

#	Name	Objection/Support	Issue
			<ul style="list-style-type: none"> • This would result in increase boat wakes, nuisance to rowers, damage to equipment and an increase in potential injuries, from collisions in the dark. • Rowing clubs have nowhere else to train. • It's in the best interests of the Community to reject the Kendall Bay Marina.
28	Department of Environment, Climate Change and Water		<ul style="list-style-type: none"> • The Marina must not impact on the remediation works to be completed by Jemena. • DECCW currently prefers to manage the remaining sediments through the international best practice of minimising sediment disturbance. • As technologies for in situ remediation of sediments advance, DECCW may reconsider this approach in the future.

APPENDIX D PUBLIC HEARINGS SCHEDULE

Wednesday 23 February 2011		
9:30 – 9:35		Chair Open Statement
9:35 – 10:15	1	City of Canada Bay Council <ul style="list-style-type: none"> • Clr Angelo Tsirekas • Mr Gary Shiels • Mr Adrian Kingswell
10:15 – 10:25	2	Ian West, MLC
10:25 – 10:35	3	John Sidoti
10:35 – 10:45	4	Canada Bay Greens <ul style="list-style-type: none"> • Pauline Tyrrell
10:45 – 11:00 Morning Tea		
11:00 – 11:30	5	Kendall Inlet Strata Plan <ul style="list-style-type: none"> • Tony Robertson
11:30 – 12:15	6	Breakfast Point Residents Group <ul style="list-style-type: none"> • Greg McGrath • Laurie Ihnativ • Rodney Jeffery
12:15 – 12:45	7	Carolina Apartments <ul style="list-style-type: none"> • Brian Lawrenson
12:35 – 1:15	8	Sydney Rowing Club <ul style="list-style-type: none"> • Stephen Handley
1:15 – 2:15 Lunch		
2:15 – 2:25	9	Jack Taylor
2:25 – 2:35	10	Don McKenzie
2:35 – 2:45	11	Bonnie McKenzie
2:45 – 2:55	12	Janet Griffin
2:55 – 3:05	13	Janice Jeffery
3:05 – 3:15	14	Ralph Rawlinson
3:15 – 3:25	15	Greg McGrath
3:25 – 3:35	16	Maria McGrath
3:35 – 3:45	17	Rodney Jeffery
3:45 – 4:00 Afternoon Tea		
4:00 – 4:10	18	Ida Colagiuri
4:10 – 4:20	19	Susan White
4:20 – 4:30	20	Denis Osborne
4:30 – 4:40	21	Merrick Plater
4:40 – 4:50	22	Diane Brown
4:50 – 5:00	23	Ron Schmid

Thursday 24 February 2011		
9:30 – 9:35		Chair Open Statement
9:35 – 9:45	24	Michael Muir
9:45 – 9:55	25	Laurie Ihnativ
9:55 – 10:05	26	Cheryl Ihnativ
10:05 – 10:15	27	Ian Hope
10:15 – 10:25	28	Robert Brown
10:25 – 10:35	29	John Clarke
10:35 – 10:45	30	Don Halliday
10:45 – 11:0 Morning Tea		
11:00 – 11:10	31	Rosslyn Fitton
11:10 – 11:20	32	Brian McDonald
11:20 – 11:50	33	Hunter Wharf SP 75666

		<ul style="list-style-type: none"> • Nadia Price • David Crane • Wayne Taylor
11:50 – 12:00	34	Ken Jennings
12:00 – 12:10	35	Rocco Mazzeo
12:10 – 12:40	36	Admiralty Strata <ul style="list-style-type: none"> • Ian West • Rod Jeffery
12:40 – 12:50	37	Maree Dawes
12:50 – 1:05	38	Fairwater Community Association DP270299 <ul style="list-style-type: none"> • John Small